Cache Creek North Levee Setback Project

Critical Erosion Sites 1 and 2

Initial Study/Proposed Mitigated Negative Declaration and Environmental Assessment

Prepared for:

California Reclamation Board
and U.S. Army Corps of Engineers

Prepared by:

EDAW
2022 J Street
Sacramento, CA 95814

March 10, 2006

EDAW

Cache Creek North Levee Setback Project

Critical Erosion Sites 1 and 2

Initial Study/Proposed Mitigated Negative Declaration and Environmental Assessment

Prepared for:

Duane Cornett
California Reclamation Board
Staff Environmental Scientist
(916) 653-5363

and
U.S. Army Corps of Engineers

Prepared by:

EDAW
2022 J Street
Sacramento, CA 95814

March 10, 2006

EDAW

DATE: March 10, 2006

TO: Responsible and Trustee Agencies, Interested Parties, and Organizations

SUBJECT: NOTICE OF AVAILABILITY AND INTENT TO ADOPT AN INITIAL STUDY/PROPOSED MITIGATED NEGATIVE DECLARATION UNDER CEQA AND CIRCULATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT/FINDING OF NO SIGNIFICANT IMPACT UNDER NEPA FOR THE CACHE CREEK NORTH LEVEE SETBACK PROJECT – CRITICAL EROSION SITES 1 AND 2

The California Reclamation Board (Reclamation Board) and U.S. Army Corps of Engineers (USACE) have directed the preparation of an initial study/proposed mitigated negative declaration (IS/MND) and an environmental assessment/draft finding of no significant impact (EA/FONSI) on the proposed project in accordance with the requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), respectively. The Reclamation Board is the lead agency for the proposed project under CEQA and USACE is the federal lead agency under NEPA.

An IS/MND-EA/FONSI describes the project and its potential impacts on the environment and concludes that any potentially significant impacts that may result from the proposed project can be avoided, eliminated, or reduced to a level that is less than significant by the adoption and implementation of specified mitigation measures.

Project Location: The proposed project would be located on the landside of the north bank levee at Levee Mile (LM) 0.8 and LM 1.1 on Cache Creek. The project area is located in Yolo County, northwest of the City of Woodland and south of the town of Yolo.

Description of the Proposed Project: The Reclamation Board, in association with USACE, is proposing to construct two setback levees along the north bank of Cache Creek at two critical erosion sites. These two sites were added to the Sacramento River Bank Protection Project erosion inventory in 2002, and encroachment by Cache Creek into the banks at these sites requires immediate work to prevent levee failure. The new levees would be approximately 700 and 825 feet in length, and would be placed between 100 and 50 feet from the existing levee. The existing levee would remain in place and would be notched to allow for drainage.

Public Review Period: The IS/MND-EA/FONSI is being circulated for public review and comment for a review period of 30 days starting March 10, 2006. Written comments should be submitted and received at the following address no later than close of business (4:00 p.m.) on April 10, 2006:

Mr. Duane Cornett, Staff Environmental Scientist
Department of Water Resources
Division of Engineering
Construction Branch
P.O. Box 942836
Sacramento, CA 94236
(916) 653-5363
dcornett@water.ca.gov

Copies of the IS/MND-EA/FONSI may be reviewed at the Yolo County Library, located at 226 Buckeye Street, Woodland, California. The IS/MND-EA/FONSI can also be reviewed on the Department of Water Resources' website at http://www.recbd.ca.gov. Your views and comments on how the project may affect the environment are welcomed.

PROPOSED MITIGATED NEGATIVE DECLARATION

PROJECT: Cache Creek North Levee Setback Project – Critical Erosion Sites 1 and 2

LEAD AGENCY: California Reclamation Board

AVAILABILITY OF DOCUMENTS: The initial study for this proposed mitigated negative declaration is available for review at the Yolo County Library, located at 226 Buckeye Street, Woodland, California and on the Department of Water Resources' website at: http://www.recbd.ca.gov/. Questions or comments regarding this proposed mitigated negative declaration and initial study may be addressed to:

Mr. Duane Cornett, Staff Environmental Scientist
Department of Water Resources
Division of Engineering
Construction Branch
P.O. Box 942836
Sacramento, CA 95814
(916) 653-5363

PROJECT DESCRIPTION: The California Reclamation Board (Reclamation Board) is proposing to construct two setback levees along the north bank of Cache Creek at two critical erosion sites. These two sites were added to the SRBPP erosion inventory in 2002, and encroachment by Cache Creek into the banks at these sites requires immediate work to prevent levee failure. The new levees would be approximately 700 and 825 feet in length, and would be placed between 100 and 50 feet from the existing levee. Approximately 8,400 cubic yards of material would be needed for construction of the setback levees. The base of each setback levee would be between 40 and 50 feet wide. Notches would be cut into the existing levees to provide for drainage of the levee setback areas. Construction of the setback levees would take approximately 3 months.

The Reclamation Board has directed the preparation of an initial study/proposed mitigated negative declaration (IS/MND) on the proposed project in accordance with the requirements of the California Environmental Quality Act (CEQA). An IS/MND describes the project and its potential impacts on the environment and concludes that any potentially significant impacts that may result from the proposed project can be avoided, eliminated, or reduced to a level that is less than significant, by the adoption and implementation of specified mitigation measures.

FINDINGS: An initial study has been prepared to assess the proposed project's potential effects on the environment and the significance of those effects. Based on the initial study, the Reclamation Board has determined that the proposed project would not have any significant effects on the environment once mitigation measures are implemented. This conclusion is supported by the following findings:

- The project would result in no impacts to public services, recreation, and population and housing.
- The project would result in less-than-significant impacts to land use and agricultural resources, aesthetics, traffic, energy and mineral resources, and public utilities and service systems.
- Mitigation would be implemented to reduce potentially significant impacts to less-than-significant levels for air quality (short-term construction-related emissions), noise (short-term construction-related noise), water quality (potential erosion and spills of hazardous substances during construction), biological resources (potential impacts on special-status species), cultural resources (potential discovery of previously unknown resources or human remains during construction), geology and soils (potential erosion), and hazards and hazardous materials (potential spills of hazardous substances during construction).

- Although there are no known cultural resources that might be disturbed, mitigation is included to address the potential for discovering archaeological or paleontological resources and/or human remains during the construction phase of the project.

- The project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, reduce the number or restrict the range of a special-status species, or eliminate important examples of California history or prehistory.

- The project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals.

- The project would not have environmental effects that are individually limited but cumulatively considerable.

- The project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

- No substantial evidence exists that the project would have a negative or adverse effect on the environment.

- The project incorporates all applicable mitigation measures, as listed below and described in the initial study.

- This mitigated negative declaration reflects the independent judgment of the lead agency.

PROPOSED MITIGATION MEASURES: The following mitigation measures will be implemented by the Reclamation Board to avoid or minimize potential environmental impacts. Implementation of these mitigation measures would reduce the potential environmental impacts of the proposed project to a less-than-significant level.

- Mitigation Measure 3.3-1: Implement applicable measures to reduce short-term construction-generated emissions.

- Mitigation Measure 3.4-1: Maintain and equip construction equipment with noise control devices.

- Mitigation Measure 3.4-2: Limit construction to the hours of 6 a.m. to 9 p.m.

- Mitigation Measure 3.4-3: Arrange construction equipment travel to minimize disturbance to occupied residences.

- Mitigation Measure 3.4-4: Designate a disturbance coordinator to receive all public complaints.

- Mitigation Measure 3.5-1: Prepare a traffic control plan.

- Mitigation Measure 3.6-1: Prepare a Storm Water Pollution Prevention Plan (SWPPP).

- Mitigation Measure 3.7-1: Maintain a buffer around elderberry shrubs to avoid impact to the valley elderberry longhorn beetle.

- Mitigation Measure 3.7-2: Conduct pre-construction surveys for raptor nests and avoid any identified nests during construction.

- Mitigation Measure 3.7-3: Conduct pre-construction surveys for burrowing owls and avoid any identified burrows.

- Mitigation Measure 3.7-4: Erect brightly colored fencing around sensitive riparian habitat.
- Mitigation Measure 3.8-1: Immediately halt construction activities if any cultural resources are discovered until an evaluation is made by a qualified archaeologist.
- Mitigation Measure 3.8-2: Immediately halt construction activities if any human remains are discovered.
- Mitigation Measure 3.11-1: Ensure that all employees handling hazardous materials are trained in the safe handling and storage of hazardous materials.

In accordance with Section 21082.1 of the California Environmental Quality Act, the Reclamation Board has independently reviewed and analyzed the initial study and proposed mitigated negative declaration for the proposed project and finds that the initial study and proposed mitigated negative declaration reflect the independent judgment of the Reclamation Board. The lead agency further finds that the project mitigation measures will be implemented as stated in the mitigated negative declaration.

I hereby approve this project:

_____ _____

Dan Fua
Acting General Manager
The Reclamation Board of the State of California

Date

FINDING OF NO SIGNIFICANT IMPACT

CACHE CREEK NORTH LEVEE SETBACK PROJECT
CACHE CREEK – CRITICAL EROSION SITES 1 AND 2, LEVEE MILE 0.8 AND 1.1

I have reviewed and evaluated information presented in this environmental assessment (EA) prepared for the Cache Creek North Levee Setback Project – Critical Erosion Sites 1 and 2 (Proposed Action); other documents; and the views of other agencies, organizations, and individuals concerning the proposed setback levees on the Cache Creek North Levee at Levee Mile 0.8 and 1.1 near the Town of Yolo, California.

The California Reclamation Board, in partnership with the U.S. Army Corps of Engineers, is proposing to construct the two setback levees along the north bank of Cache Creek at two critical erosion sites. These two sites were added to the Sacramento River Bank Protection Project erosion inventory in 2002, and encroachment by Cache Creek into the banks at these sites requires immediate work to prevent levee failure. The new levees would be approximately 700 and 825 feet in length, and would be placed between 100 and 50 feet from the existing levee.

The possible consequences of constructing, operating, and maintaining the Proposed Action described in the EA have been studied with consideration given to environmental, social, economic, and engineering feasibility. The environmental effects and mitigation requirements have been thoroughly coordinated with Federal and State resource agencies. The Proposed Action would result in temporary increases in air emissions and noise levels, and would result in the loss of some agricultural lands. The Proposed Action also has the potential to cause erosion and affect biological resources in the project area. Mitigation measures have been integrated into the project to reduce these potentially significant impacts to less-than-significant levels.

Based on my review, I have determined that with the implementation of mitigation measures identified in the EA, the proposed setback levees would result in no significant effects on the human environment.

Based on these considerations, I am convinced that there is no need to prepare an EIS. The EA and Finding of No Significant Impact provide adequate environmental documentation to fully satisfy the requirements of the National Environmental Policy Act of 1969, as amended, for the Proposed Action.

_____ _____

Ronald N. Light
Colonel, Corps of Engineers
District Engineer

Date

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APPENDICES

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EXHIBITS

ACRONYMS AND ABBREVIATIONS

AB 1328	Assembly Bill 1328
ADT	average daily traffic
AG	Agriculture
A-P	Agricultural Preserve
APE	Area of Potential Effect
AQAP	Air Quality Attainment Plan
ARB	California Air Resources Board
BMP	Best Management Practice
CAAA	Clean Air Act Amendments
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CCR	California Code of Regulations
CCRMP	Cache Creek Resource Management Plan
Central Valley RWQCB	Central Valley Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CNDDB	California Natural Diversity Database
CNEL/Ldn	Community Noise Equivalent and Day-Night noise levels
CNPS	California Native Plant Society
CNRR	California Northern Railroad
CO	carbon monoxide
County	Yolo County
CR	County Road
CRHR	California Register of Historic Resources
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
cy	cubic yards
DFG	California Department of Fish and Game
DFM	Division of Flood Management
diesel PM	diesel-fueled engines
DOC	California Department of Conservation
DWR	California Department of Water Resources
EA	environmental assessment
EFH	Essential Fish Habitat
EIR	environmental impact report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FONSI	finding of no significant impact
FPD	Yolo Fire Protection District
FPPA	Federal Farmland Protection Policy Act
FTA	Federal Transit Administration

FWCA	Fish and Wildlife Coordination Act
HCP	Habitat Conservation Plan
HTRW	hazardous, toxic, or radioactive waste
I-5	Interstate 5
in/sec	inches per second
IS	initial study
lb/day	pounds per day
LCCFB	Lower Cache Creek Flood Barrier
LESA	Land Evaluation-Site Assessment System
Manual	Department of Conservation California Agricultural LESA Model 1997 Instruction Manual
MLD	Most Likely Descendent
MMcf	million million cubic feet
MND	mitigated negative declaration
mph	miles per hour
MRZ	Mineral Resource Zones
MW	megawatt
NAHC	Native American Heritage Commission
NCCP	Natural Communities Conservation Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NO_X	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	U.S. Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OAP	Ozone Attainment Plan
OCMP	Off-Channel Mining Plan
OEHHA	Office of Environmental Health Hazard Assessment
PG&E	Pacific Gas & Electric Company
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
project area	Sites 1 and 2
Reclamation Board	California Reclamation Board
RMS	root mean square
ROG	reactive organic gas
SACOG	Sacramento Area Council of Governments
SCS	U.S. Soil Conservation Service
Site Assessment	Phase I Environmental Site Assessment
SH	State Highway
SH 16	State Highway 16
SIP	State Implementation Plan
SMARA	California Surface Mining and Reclamation Act
SMY	DWR Sacramento Maintenance Yard
SRBPP	Sacramento River Bank Protection Project
SWPPP	Storm Water Pollution Prevention Plan
TAC	Toxic Air Contaminant
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

VELB	valley elderberry longhorn beetle
VMT	vehicle miles traveled
WDR	waste discharge requirements
WTE	waste-to-energy
YCESA	Yolo Communications Emergency Services Agency
YCFCWCD	Yolo County Flood Control and Water Conservation District
YCSD	Yolo County Sheriffs Department
YSAQMD	Yolo-Solano Air Quality Management District
µin/sec	microinch per second

1 INTRODUCTION

The California Reclamation Board (Reclamation Board) and the U.S. Army Corps of Engineers (USACE) in partnership in the Sacramento River Bank Protection Project (SRBPP), have prepared this document to address the environmental consequences of the proposed Cache Creek North Levee Setback Project – Critical Erosion Sites 1 and 2 (proposed project or Proposed Action) in Yolo County, California. The California Department of Water Resources (DWR), as staff to the Reclamation Board, is acting as the design and contracting agency for the Proposed Action. USACE, in cost-sharing partnership with a local sponsor, is authorized and funded by the federal government to construct bank stabilization and setback levees to protect the Sacramento River Flood Control Project (FCP) from bank erosion under the SRBPP. The Reclamation Board is authorized and funded by the State of California to act as the local sponsor in the SRBPP. These two agencies – USACE and the Reclamation Board – are the project proponents of the actions analyzed in this report.

The Proposed Action involves constructing two setback levees along the north bank of Cache Creek at two critical erosion sites into the levees that are part of the FCP (federal levees). These two sites were added to the SRBPP erosion inventory in 2002, and encroachment by Cache Creek into the banks at these sites requires immediate remediation to prevent levee failure. The levees are maintained by DWR under provisions of the State Water Code Section 8361. The new levees would be approximately 700 and 825 feet in length, and would be placed between 100 and 50 feet from the existing levee.

A third setback levee is being proposed by the Reclamation Board and USACE for another critical erosion site that was also added to the SRBPP erosion inventory in 2002 (Site 3). This proposed setback levee is discussed in a separate Initial Study/Environmental Assessment (IS/EA). Potentially more complex land ownership issues, overall project cost considerations, and a different implementation schedule for Site 3 led the Reclamation Board and USACE to pursue a separate IS/EA for this site. On February 24, 2006, the Governor of California proclaimed that a State of Emergency exists for California's levee system and he included the 3 sites as needing levee repair to prevent catastrophic failure which would result in significant environmental impacts.

SRBPP was first authorized by the Federal Control Act of 1960. During the first phase of its implementation, 1960 to 1975, approximately 430,000 linear feet (81.4 miles) of riprap bank protection were installed. The federal government subsequently authorized a second phase to consist of up to 405,000 linear feet (76.7 miles) of bank protection.

This document is tiered from the Environmental Impact Report/Supplemental Environmental Impact Statement IV for SRBPP (EIR/SEIS IV). EIR/SEIS IV, hereby incorporated by reference, is a programmatic assessment of impacts of the entire SRBPP that evaluates and discloses general and common impacts of SRBPP riprap projects, including cumulative effects of SRBPP. (This document tiers not only from EIR/SEIS IV, but also from the original EIS and subsequent documents – supplemental EIR/EISs I, II, III, and V – prepared by USACE and the Reclamation Board.) EIR/SEIS IV disclosed that SRBPP has and may continue to have long-term adverse effects on biological and visual resources along the Sacramento River system. It also described the benefits of setting back levees and modifying traditional revetment in ways to promote the regeneration of native habitats, to be pursued where feasible. The document focused on riparian and shaded riverine aquatic (SRA) cover, noting the impacts to both general- and special-status fish and wildlife species are directly linked to impacts on these habitats.

This document includes:

- a joint initial study (IS) and environmental assessment (EA) to satisfy California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) requirements, respectively;
- a proposed mitigated negative declaration (MND); and

- a notice of availability and intent to adopt an IS/MND for the Proposed Action.

After completion of the required public review of this document, the Reclamation Board intends to adopt the MND, while USACE intends to prepare, notify the public about, and adopt a finding of no significant impact (FONSI).

1.1 PURPOSE OF THIS DOCUMENT AND REGULATORY GUIDANCE

1.1.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

This document is a joint IS/MND prepared in accordance with CEQA, Public Resources Code §21000 et seq., and the State CEQA Guidelines, Title 14 California Code of Regulations (CCR) Section 15000 et seq. The purpose of this IS/MND is to: (1) determine whether project implementation would result in potentially significant or significant effects to the environment, and (2) incorporate mitigation measures into the project design, as necessary, to eliminate the project's potentially significant or significant project effects or reduce them to a less-than-significant level. An IS/MND presents the environmental analysis and substantial evidence supporting its conclusions regarding the significance of environmental impacts. Substantial evidence may include expert opinion based on facts, technical studies, or reasonable assumptions based on facts. An IS/MND is not intended nor required to include the level of detail used in an environmental impact report (EIR).

CEQA requires that all state and local government agencies consider the environmental consequences of projects they propose to carry out, or over which they have discretionary authority, before implementing or approving those projects. As specified in State CEQA Guidelines Section 15367, the public agency that has the principal responsibility for carrying out or approving a project is the lead agency for CEQA compliance. The Reclamation Board has principal responsibility for carrying out the proposed project and is therefore the CEQA lead agency for this IS.

As specified in State CEQA Guidelines Section 15064(a), if there is substantial evidence (such as the results of an initial study) that a project, either individually or cumulatively, may have a significant effect on the environment, the lead agency must prepare an EIR. The lead agency may instead prepare a negative declaration if it determines there is no substantial evidence that the project may cause a significant impact on the environment. The lead agency may prepare a MND if, in the course of the initial study analysis, it is recognized that the project may have a significant impact on the environment but that implementing specific mitigation measures (i.e., incorporating revisions into the project) would reduce any such impacts to a less-than-significant level (State CEQA Guidelines Section 15064[f]).

The Reclamation Board has prepared this IS to evaluate the potential environmental effects of the proposed project and has incorporated mitigation measures to reduce or eliminate any potentially significant project-related impacts. Therefore, a MND has been prepared for this project.

1.1.2 NATIONAL ENVIRONMENTAL POLICY ACT

NEPA compliance is triggered by a discretionary federal action. USACE is the lead agency under NEPA (40 CFR 1501.5) because USACE has jurisdiction over and is responsible for certification of federal levees. Federal levees are levees that were constructed as part of the FCP (Jones & Stokes 1987) and are the responsibility of USACE. Prior to the approval of the Proposed Action, USACE must comply with NEPA and the regulations published by the Council on Environmental Quality (Title 40 Code of Federal Regulations [CFR] Parts 1500-1508). This document serves as an EA, prepared in accordance with NEPA and associated federal guidelines. An EA is a concise document, prepared with input from various disciplines and interested parties that provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a FONSI. As required under NEPA, this EA provides information describing the Proposed Action, alternatives, and related environmental consequences. Prior to making a final decision on the Proposed Action, the EA is being provided

to public agencies and citizens to allow for an opportunity to comment. After public review of the EA, it is the USACE's intent to prepare a FONSI for the Proposed Action.

1.2 REFERENCE MATERIALS USED IN PREPARATION OF THIS DOCUMENT

Background information presented in this document is taken primarily from the *Lower Cache Creek Feasibility Report for Potential Flood Damage Reduction Project*, the *Draft Environmental Impact Statement and Environmental Impact Report for the Lower Cache Creek Feasibility Report for Potential Flood Damage Reduction Project* (USACE 2002, 2003), and the *SRBPP EIR/SEIS IV* (Jones & Stokes Associates 1987). Other documents used in the preparation of this IS/EA include the *Yolo County General Plan* (Yolo County 1983), the *Engineering Geology Report for the Cache Creek Setback Levees* (DWR 2006), and *Technical Studies and Recommendations for the Lower Cache Creek Resource Management Plan* (EIP Associates et. al. 1995). Additionally, field reports, Department of Engineering designs, biological surveys, and geotechnical analyses completed by EDAW and DWR were used in preparing this document.

1.3 DOCUMENT ORGANIZATION

This document is divided into the following sections:

Notice of Availability and Intent to Adopt an IS/MND. The Notice of Availability and Intent to Adopt an IS/MND provides notice to responsible and trustee agencies, interested parties, and organizations of the availability of this IS/EA, as well as the Reclamation Board's intent to adopt an IS/MND for the Proposed Action.

Proposed MND. The proposed MND, which precedes the IS/EA analysis, summarizes the environmental conclusions and identifies mitigation measures that would be implemented in conjunction with the Proposed Action. The MND would be signed by a representative of the Reclamation Board.

Chapter 1 – **Introduction** provides an introduction to the project, lead agencies, reference documents, regulatory information, purpose and organization of this document, and summary of findings.

Chapter 2 – **Description of Proposed Action** provides the purpose and need, general background, and description for the Proposed Action.

Chapter 3 – **Affected Environment**, **Environmental Consequences, and Mitigation Measures** includes Affected Environment, Thresholds of Significance (CEQA and NEPA), Environmental Consequences, and Mitigation Measures, where appropriate, to mitigate potentially significant impacts to less-than-significant levels.

Chapter 4 – **Cumulative and Growth-Inducing Impacts** describes the cumulative and growth-inducing effects of the Proposed Action.

Chapter 5 – **Alternatives** provides a description of the environmental consequences and mitigation measures associated with alternatives to the Proposed Action, including the No-Action Alternative.

Chapter 6 – **Consultation and Coordination** includes a description of agencies, organizations, and persons consulted. It also includes a description of the public involvement process for this document.

Chapter 7 – Compliance with Environmental Statutes includes a description of federal and state laws and executive orders that the project has complied with.

Chapter 8 – **References** lists references cited in this IS/EA.

Chapter 9 – **Report Preparers** lists the preparers of this IS/EA.

1.4 SUMMARY OF FINDINGS

Based on the significance criteria found in the State CEQA Guidelines, consideration of the context and intensity of potential project-related impacts as required under NEPA, the supporting environmental analysis presented in Chapter 3 of this document, and public input, the following was determined:

Implementation of the Proposed Action would have no impact on the following:

- Public Services
- Recreation
- Population and Housing

Implementation of the Proposed Action would result in less-than-significant impacts on the following:

- Land Use and Agricultural Resources
- Energy and Mineral Resources
- Public Utilities and Service Systems
- Aesthetics
- Traffic and Circulation

Implementation of the Proposed Action would result in less-than-significant impacts following mitigation on the following:

- Air Quality
- Noise
- Biological Resources
- Cultural Resources
- Hydrology and Water Quality
- Hazards and Hazardous Materials
- Geology and Soils

2 DESCRIPTION OF PROPOSED ACTION

2.1 PROJECT PURPOSE AND NEED

CEQA Guidelines require a clearly written statement of objectives, including the underlying purpose of the Project (Guidelines Sec. 15124[b]). NEPA regulations require a statement of "the underlying purpose and need to which the agency is responding in proposing the alternatives, including the Proposed Action" (40 CFR 1502.13). The statement of purpose and need is important because it explains why the Proposed Action is being undertaken and what objectives the action is intended to achieve. Moreover, the statement of purpose and need is critical in helping the lead agencies develop a reasonable range of alternatives to evaluate and aids the decision makers in preparing findings or a statement of overriding considerations, if necessary. This section summarizes the need for, and purpose and objectives of, the Proposed Action.

PROJECT NEED

The Reclamation Board and USACE are proposing the Cache Creek North Levee Setback Project – Critical Erosion Sites 1 and 2 (Proposed Action) to construct setback levees along the north bank of Cache Creek in Yolo County. This project would be constructed in accordance with the regulations and standards prescribed by USACE for providing levee protection. These two sites were added to the SRBPP erosion inventory in 2002. Encroachment by Cache Creek into the minimum berm specification of 30 feet has been observed at these sites, and they have been identified as requiring immediate remediation to prevent levee failure.

Cache Creek flood control issues have been longstanding. On December 16, 2003, an assessment of the equilibrium of Cache Creek was performed (DWR 2005a). The conclusions of this assessment are that the creek is extremely incised near the town of Yolo and there is a substantial risk of flooding at several erosion sites, including the two sites that are the subject of this environmental document. The erosion sites are deep, steep-walled, and close in proximity to the levee section and; therefore, the effectiveness of traditional fill and bank armoring methods is questionable, especially over the long-term. Upstream of the project reach, gravel mining has caused the lower reach of Cache Creek to become sediment starved. Because of sediment depletion, the creek is no longer in dynamic equilibrium. When a creek is in dynamic equilibrium, the water and sediment flowing through it are generally in balance and erosion and deposition are not excessive.

If current erosion patterns continue, levee integrity and flood protection along Cache Creek would be severely compromised. Construction of the proposed setback levees would serve to protect the integrity of the levee system and provide flood protection for the immediate area on the north side of the creek. Due to the urgency of the Proposed Action and the infeasibility of traditional fill and bank armoring methods, it was determined that construction of setback levees would be the most efficient and least environmentally damaging method of protecting the integrity of the levee system. Additional evaluation of alternatives is presented in Chapter 5, "Alternatives."

PROJECT PURPOSE AND OBJECTIVES

The basic project purpose is to improve flood protection on Cache Creek near the town of Yolo. Key objectives of the project are as follows:

- construct setback levees in accordance with regulations and standards prescribed by USACE to provide levee protection at critical erosion Sites 1 and 2 along Cache Creek;
- construct setback levees before the start of the 2006–07 flood season; and
- minimize environmental impacts during project construction and operation.

2.2 PROJECT LOCATION

The Proposed Action is located along Cache Creek in Yolo County, approximately 25 miles northwest of Sacramento (Exhibit 2-1). The project area is located southwest of the town of Yolo and north of the City of Woodland. Sites 1 and 2 (project area) are located along the right bank of Cache Creek at Levee Mile 0.8 and 1.1, respectively (Exhibit 2-2).

The project area is rural in nature and is surrounded by agricultural and orchard lands. Interstate 5 (I-5) is northeast of the proposed setback levee area. A few scattered residences are located in the project vicinity. Some native and predominantly nonnative vegetation comprise the riparian community along Cache Creek and its banks at the two sites.

2.3 PROJECT FEATURES AND CONSTRUCTION

SITE 1

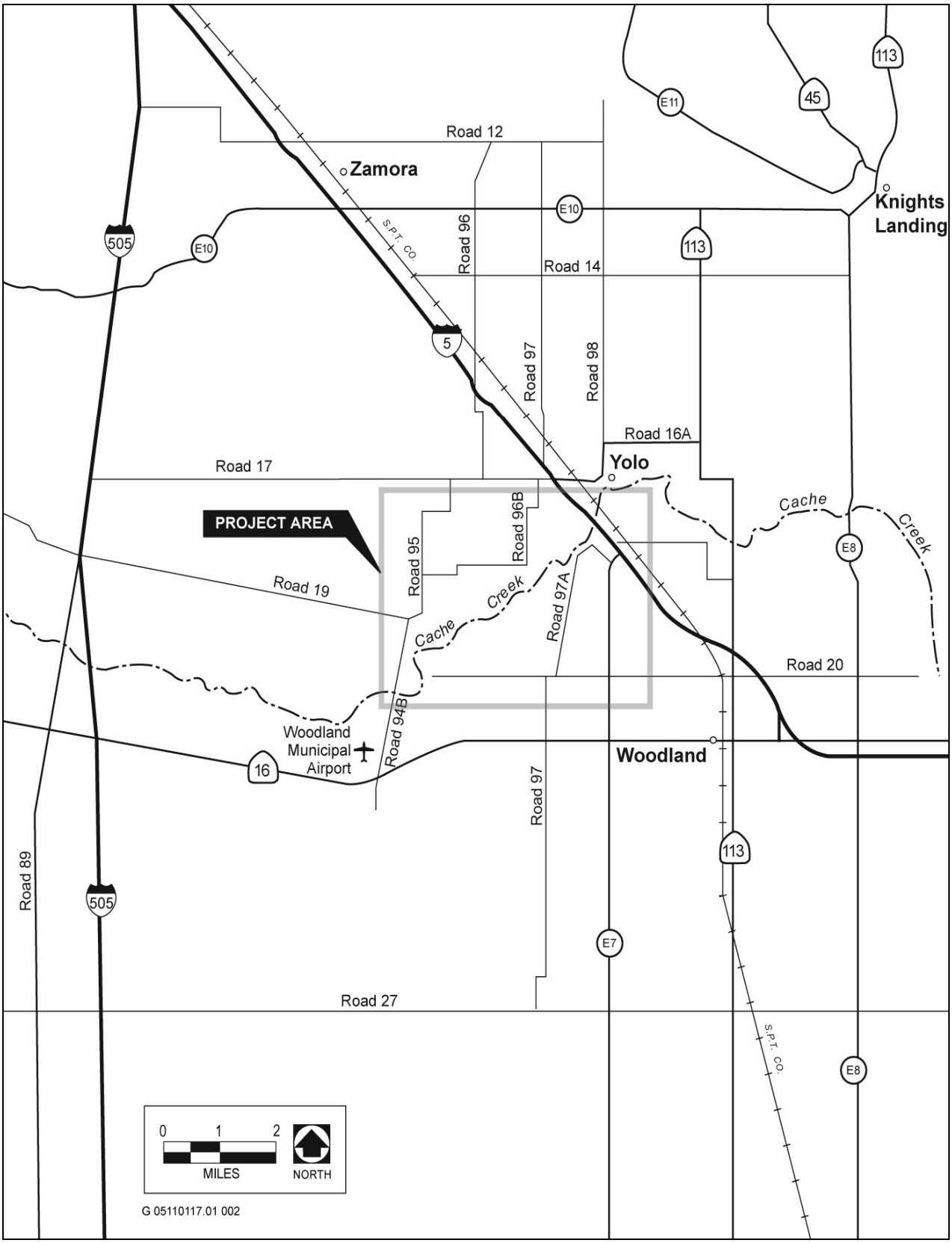
The setback levee at Site 1 would be constructed approximately 100 feet north of the existing levee and would be approximately 700 feet in length (Exhibit 2-3). This setback levee would be between 40 and 50 feet wide at the base, with a 12-foot-wide gravel road located along the top of the levee. The height of the setback levee would range from approximately 6 to 10 feet above original ground. The crest elevation will range from 90 feet to 93 feet to be consistent with the height of the existing levee. The slope of the setback levee would be 2:1 on the landside and 3:1 on the waterside. Approximately 3.11 acres of farmland would be permanently impacted by construction of the setback levee at Site 1. An additional acre of farmland would be temporarily impacted during construction of the setback levee for construction vehicle access and staging.

Approximately 3,300 cubic yards (cy) of fill and 244 tons of aggregate base would be needed for construction of this setback levee, and this fill would be hauled in from off-site. Fill material would be purchased from a commercially operated and permitted site within 15 miles of the project area; therefore, there would be no additional environmental effects at the borrow site. Any material to be disposed of would be disposed of at a properly permitted landfill. The existing levee at Site 1 would be notched in one location to allow drainage of the levee setback area back into Cache Creek. This notch would be approximately 10 feet wide and would be degraded to the same elevation as the levee setback area. Sensitive resources would be avoided during notching of the existing levee and siting and construction of the setback levee.

SITE 2

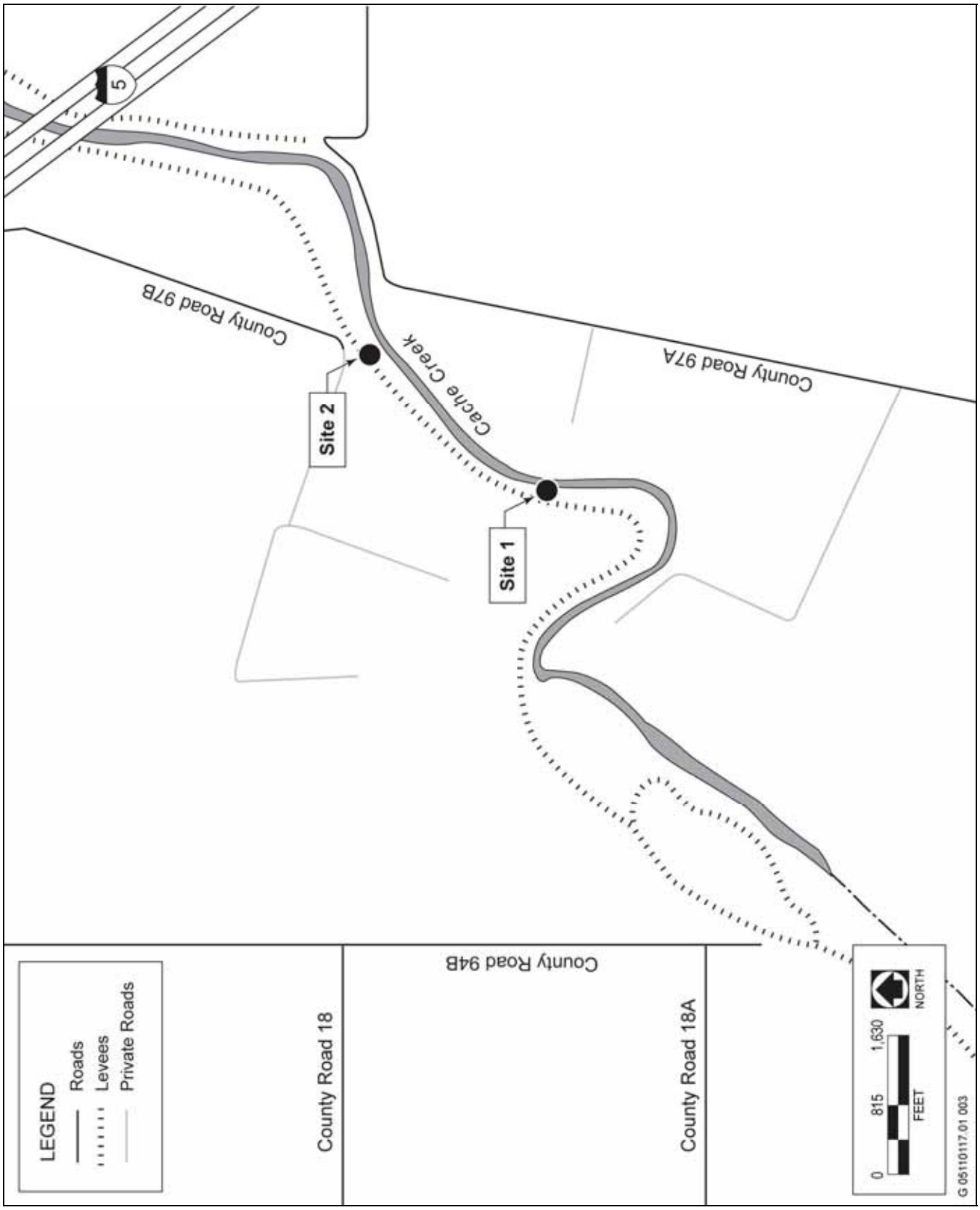
The setback levee at Site 2 would be constructed approximately 50 feet north of the existing levee and would be approximately 825 feet in length (Exhibit 2-4). This setback levee would be between 40 and 50 feet wide at the base, with a 12-foot-wide gravel road located along the top of the levee. The height of the setback levee would be approximately 6 to 10 feet above original ground. The crest elevation would be approximately 89 to be consistent with the height of the existing levee. The slope of the setback levee would be 2:1 on the landside and 3:1 on the waterside of the setback levee. Approximately 1.95 acres of farmland would be permanently impacted by construction of the setback levee at Site 1. Another 2 acres of farmland would be temporarily impacted during construction of the setback levee for construction vehicle access and staging.

Approximately 5,100 cy of fill and 220 tons of aggregate base would be hauled in from off-site for construction of this setback levee. Fill material would be purchased from a commercially operated and permitted site within 15 miles of the project area; therefore, there would be no additional environmental effects at the borrow site. Any material to be disposed of would be disposed of at a properly permitted landfill. The existing project levee at Site 2 would be notched at two points to allow drainage of the levee setback area back into Cache Creek. Each of these notches would be approximately 10 feet wide and they would be degraded to the same elevation as the levee setback area. Sensitive resources would be avoided during notching of the existing levee and siting and construction of the setback levee.



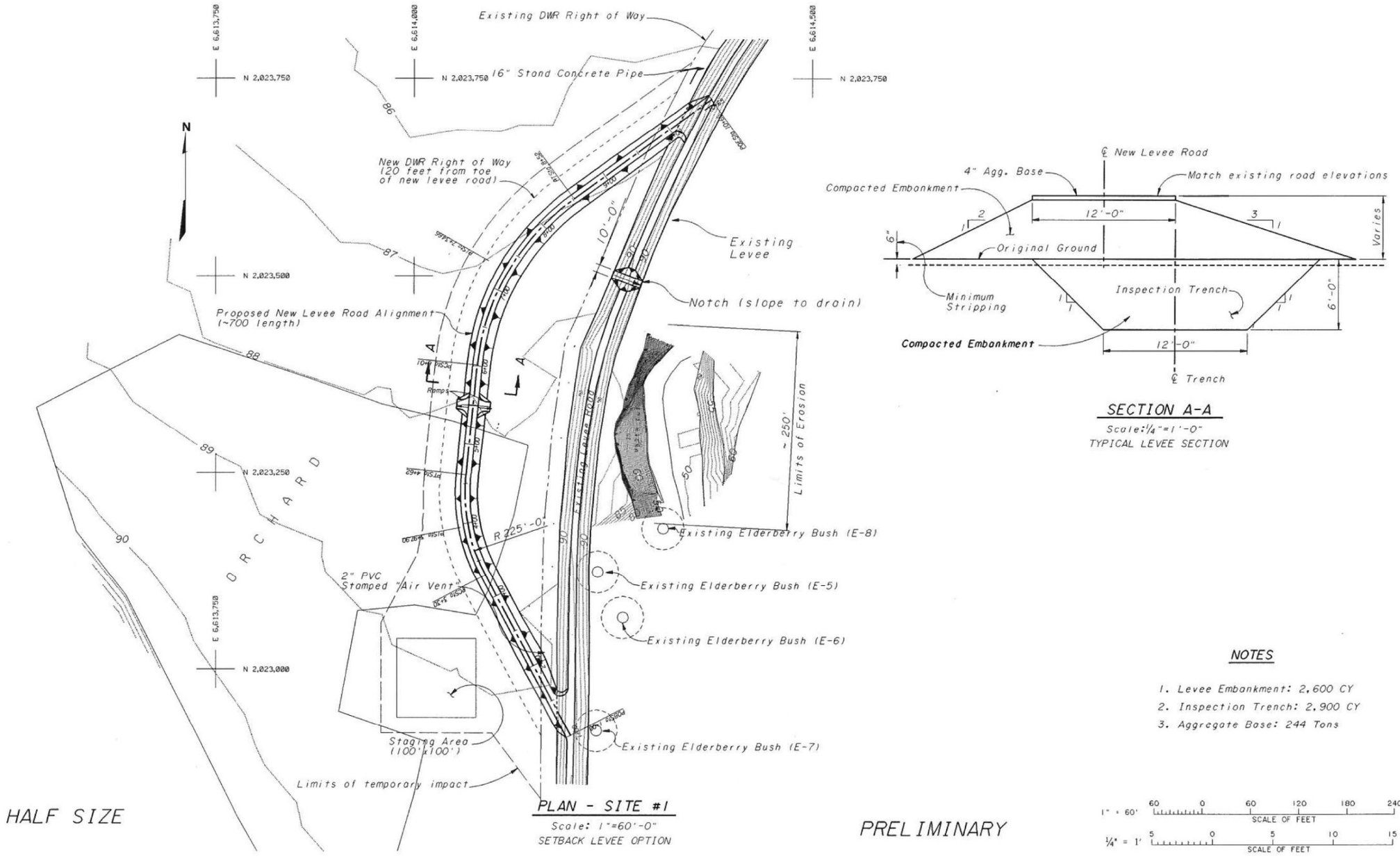
Source: EDAW 2006

Regional Location and Area of Potential Effect **Exhibit 2-1**



Source: EDAW 2006

Project Location **Exhibit 2-2**



PLAN - SITE #1
Scale: 1"=60'-0"
SETBACK LEVEE OPTION

HALF SIZE

SECTION A-A
Scale: ¼"=1'-0"
TYPICAL LEVEE SECTION

NOTES

1. Levee Embankment: 2,600 CY
2. Inspection Trench: 2,900 CY
3. Aggregate Base: 244 Tons

PRELIMINARY

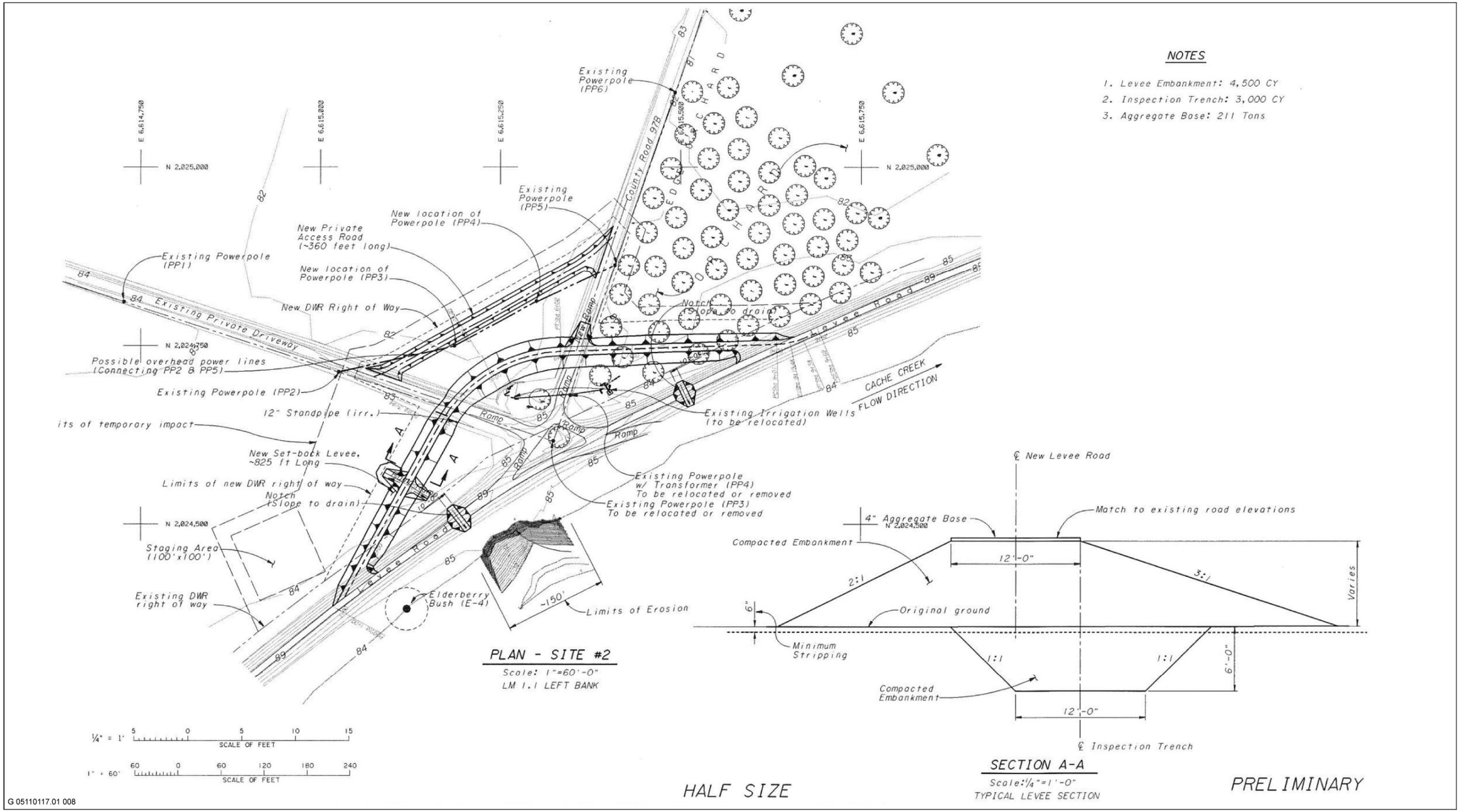
1" = 60' 60 0 60 120 180 240 SCALE OF FEET

¼" = 1' 5 0 5 10 15 SCALE OF FEET

G 05110117.01 007

Source: DWR 2006

Proposed Setback Levee Alignment – Site 1 **Exhibit 2-3**



Source: DWR 2006

Proposed Setback Levee Alignment – Site 2 **Exhibit 2-4**

Two existing power poles and portions of a private driveway and County Road 97B would need to be relocated at Site 2 because of the location of the setback levee. A new 360-foot private access road would be constructed on the landside of the setback levee to connect the existing private driveway to County Road 97B. The existing power poles are owned and maintained by Pacific Gas & Electric Company (PG&E) and also have telephone lines for SBC. These poles would be removed or relocated to an area outside of the levee setback area.

CONSTRUCTION EQUIPMENT AND STAGING AREAS

There would be a 100-foot by 100-foot temporary staging area at each site for construction parking and storage of construction equipment. These staging areas would be located outside of the levee setback areas.

The following heavy equipment would likely be used for construction of the setback levees:

- scrapers for excavating levee material,
- excavator for trenching,
- loaders for aggregate base,
- compactor for foundation and levee embankment, and
- water truck to reduce dust emissions.

Approximately 332 round trips for construction equipment would be needed for construction of the setback levee at Site 1, and approximately 468 round trips for construction equipment would be needed for construction of the setback levee at Site 2. The estimated number of round trips is broken down by construction activity in Table 2-1. In addition, there would be round trips created by construction workers commuting to and from the project area.

Table 2-1
Truck Trips for Construction of the Setback Levees

Construction Activity	Amount of Material Needed	Number of Round Trips for Construction Equipment
Site 1		
Import/Export	–	2
Refuse Export	–	1
Trench excavation	2,850 cubic yards	1
Trench compaction	2,850 cubic yards	1
Embankment construction	4,662 cubic yards	311
Aggregate base for levee road construction	244 tons	12
Dust control	–	3
Grading	–	1
Site 2		
Import/Export	–	1
Refuse Export	–	1
Trench excavation	2,475 cubic yards	1
Trench compaction	2,475 cubic yards	1
Embankment construction	6,737 cubic yards	449
Aggregate base for levee road construction	211 tons	11
Dust control	–	3
Grading	–	1
Total		**800**

CONSTRUCTION SCHEDULE

Construction of both setback levees would take approximately 3 months and would occur between mid-August and mid-November 2006.

2.4 PROJECT OPERATIONS AND MAINTENANCE

The operation and maintenance of the proposed setback levees would be similar to the operation and maintenance of the existing Cache Creek levees. These levees are maintained by the DWR Sacramento Maintenance Yard (SMY). Maintenance activities may include, but are not limited to, visual inspections of levees, burning and/or mowing to maintain vegetation, and sealing holes in the levees caused by rodents. Following construction of the proposed setback levees, notches would be cut into the existing levees and they would no longer be maintained as the project levees. The levee setback areas would be seeded with native grasses to prevent establishment of invasive species and maintenance may be required to ensure proper drainage of the levee setback areas.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

PROJECT INFORMATION

1. Project Title: Cache Creek North Levee Setback Project – Critical Erosion Sites 1 and 2

2. Lead Agency Name and Address: California Reclamation Board
P.O. Box 942836
Sacramento, CA 94236

3. Contact Person and Phone Number: Duane Cornett – 916/653-5363

4. Project Location: Along north bank of Cache Creek at North Levee Mile 0.8 and 1.1 in Yolo County near town of Yolo.

5. Project Sponsor=s Name and Address: California Reclamation Board
P.O. Box 942836
Sacramento, CA 94236

6. General Plan Designation: Agriculture

7. Zoning: Agricultural Preserve

8. Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

   The proposed project would consist of two setback levees that would be constructed at two critical erosion sites (Site 1 and Site 2) along the north bank of Cache Creek. The new levees would be approximately 700 and 825 feet in length, respectively, and would be placed between 100 and 50 feet from the existing levee. The levees would be approximately 40 to 50 feet wide at their base. One 10-foot wide notch would be cut into the existing levee at Site 1 and two 10-foot notches would be cut into the existing levee at Site 2 to provide drainage for the levee setback areas. Two existing power poles, two existing agricultural water wells, and a private driveway that connects to County Road 97B would be relocated at Site 2.

9. Surrounding Land Uses and Setting: (Briefly describe the project's surroundings) Agricultural crop lands, orchards, and farmsteads

10. Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement) U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service, Central Valley Regional Water Quality Control Board, and Department of Water Resources

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality	☐ Land Use / Planning
☐ Mineral Resources	☐ Noise	☐ Population / Housing
☐ Public Services	☐ Recreation	☐ Transportation / Traffic
☐ Utilities / Service Systems	☐ Mandatory Findings of Significance	☒ None With Mitigation

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared. ☐

I find that although the proposed project COULD have a significant effect on the environment, there **WILL NOT** be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared. ☒

I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required. ☐

I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed. ☐

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. ☐

Signature	Date
Printed Name	Title
California Reclamation Board	
Agency	

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

   the significance criteria or threshold, if any, used to evaluate each question; and

   the mitigation measure identified, if any, to reduce the impact to less than significance.

3.1 LAND USE AND AGRICULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Land Use and Planning. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☒	☐
II. Agricultural Resources. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☒	☐
c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	☐	☐	☐	☒

This section analyzes the potential effects of the Proposed Action on land use and agricultural resources, including mitigation as necessary.

3.1.1 AFFECTED ENVIRONMENT

The land use analysis is based on a review of agricultural characteristics of lands in the study area; it is further based on consideration of actions that could result in adverse physical changes to the environment or in the degradation of physical attributes that historically supported native riparian habitat and that have supported agricultural production in recent times. Agricultural characteristics include lands designated by the California. Department of Conservation (DOC) as being of prime, unique, or statewide importance, and relative values of active agricultural operations in the study area and local counties. The affected environment with respect to agricultural resources in the study area are described below.

The information presented on land uses and agriculture is primarily based on review of existing documents and other relevant information, including:

- Yolo County General Plan (updated) (Yolo County 2002a);
- Yolo County General Plan Update Background Report (Yolo County 2005);
- Yolo County Geographic Information System (Yolo County 2004);
- Final Off-Channel Mining Plan for Lower Cache Creek (Yolo County 1996);
- Revised Final Cache Creek Resources Management Plan for Lower Cache Creek (Yolo County 2002b);
- DOC, Division of Land Resource Protection, Farmland Mapping and Monitoring Program (DOC 2004);
- Farmland Mapping and Monitoring Program, Important Farmland Categories (DOC 2005); and
- 2004 data on Williamson Act contracted lands provided on the DOC Web site (http://www.consrv.ca.gov, 2004).

LAND USE

The project area comprises two levee setback sites (Site 1 and Site 2) located along the landside of the north levee of Cache Creek southwest of the town of Yolo. Site 2 is located where County Road 97B approaches Cache Creek, and Site 1 is located approximately 0.26 mile southwest of Site 2. Both sites are immediately adjacent to the existing levee.

The agricultural fields at Site 1 contained orchards in the recent past, as shown from aerial photographs, but the orchards have been removed in the last year. The developed portion of the project area consists of a portion of County Road 97B that enters the project area from the north and exits on the west. On the waterside of the existing levee (south of Site 2 and southeast of Site 1), remnant patches of riparian forest grow on the upper banks of the creek. Lands to the north of the project area are characterized by agricultural fields and walnut orchards.

Yolo County includes the cities of Davis, West Sacramento, Woodland, and Winters, as well as the unincorporated communities of Capay, Clarksburg, Dunnigan, Esparto, Guinda, Knights Landing, Madison, Rumsey, Yolo, and Zamora. Yolo County and its cities are part of the six-county region, which is encompassed by the Sacramento Area Council of Governments (SACOG), and also includes the counties of El Dorado, Placer, Sacramento, Sutter, and Yuba. In the larger geographic sense, the valley portion of Yolo County is part of the Sacramento Valley, which when combined with the San Joaquin Valley makes up the Central Valley of California (Yolo County 2002a).

The town of Yolo is mostly residential in nature. There is little commercial development, and most of these facilities are related to highway-oriented businesses and agriculture-related industrial operations (Yolo County 2002a).

The project area is currently designated as Agriculture (AG) by the Yolo County General Plan. This land use designation is applied to lands best suited for agriculture, and serves to preserve them from the encroachment of nonagricultural uses. The Agriculture designation is intended to include lands in contracted agricultural preserves and Farmland Security Zones, or lands suitable for such use. Uses approved on lands in agricultural preserves or Farmland Security Zones must be consistent and compatible with the provisions of State law and the Yolo County ordinance.

Examples of uses that are considered appropriate under the Agriculture designation include, but are not limited to: growing and harvesting field crops, grain, and hay crops; growing and harvesting fruit and nut trees, vines, and vegetables; wildlife preserves; growing and harvesting forest resources; pasture and grazing land; animal raising operations; agricultural-related essential industry and support services; uses related to natural resources; wineries; recreational uses; lodging; and residential uses, generally limited to housing for farm owners, family members, and farm laborers.

The project area is zoned Agricultural Preserve (A-P) under the Yolo County Zoning Code (Yolo County 2004). This zone provides uses on lands best suited for agricultural purposes. The minimum lot area is 80 acres (Yolo County 2005).

The Final Off-Channel Mining Plan (OCMP) for Lower Cache Creek established a comprehensive and integrated planning framework for regulating and protecting the Cache Creek area. The OCMP accommodates gravel mining on the creek terraces (but not in-channel), while emphasizing habitat restoration, open space, and reclamation of mined lands to agricultural use. The OCMP describes a future groundwater recharge and storage program and allows for future recreation opportunities along the creek. The OCMP, together with the Cache Creek Resources Management Plan (CCRMP) (described below), constitute the Cache Creek Area Plan (Yolo County 1996). The Cache Creek Area Plan includes approaches for managing riparian habitats along Cache Creek below Capay, in particular; for restoring habitats, reducing erosion, maintaining flood capacity, and improving water quality. Among the goals of the plan is to promote coordination of local, state, and federal regulation of activities within Cache Creek. The entire project area is within the Cache Creek Plan Area.

The CCRMP for Lower Cache Creek was adopted in 1996; the plan was revised in 2002. The CCRMP is a comprehensive management plan that eliminated commercial in-channel aggregate mining, established a program to implement projects to improve channel stability, and ensured restoration of riparian habitat along creek banks in the future. The plan area extends from the Capay Dam to Interstate 5. The CCRMP has been evaluated and determined to be consistent with the various goals and policies of the County General Plan (County of Yolo 2002b).

A Habitat Conservation Plan (HCP) has been in development in Yolo County since 1991. In 2001, the participating jurisdictions agreed with a request from the DFG to extend the planning process so that the HCP could be rewritten as a Natural Communities Conservation Plan (NCCP). The HCP/NCCP would provide strategies to conserve habitat for special-status plants and special-status wildlife species. The HCP/NCCP development and approval process is still underway and is anticipated to be completed by 2008.

AGRICULTURAL RESOURCES

Agricultural Resources in the Study Area

The Farmland Mapping and Monitoring Program (FMMP) was established in 1982 by the State of California to continue the Important Farmland mapping efforts begun in 1975 by the Soil Conservation Service (SCS). The intent of the SCS (renamed the U.S. Natural Resources Conservation Service [NRCS] in 1998) was to produce agricultural resource maps based on soil quality and land use across the nation. The DOC sponsors the FMMP and is also responsible for establishing agricultural easements in accordance with Public Resources Code Sections 10250–0255 (FMMP 2004).

The FMMP provides data for decision makers for use in planning for the current and future use of the state's agricultural lands. Under the FMMP, land is delineated into the following eight categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban or Built-Up Land, other Land, and Water. Mapping is conducted on a county-wide scale, with minimum mapping units of 10 acres unless otherwise specified.

The Important Farmland map for Yolo County designates the project area as Prime Farmland. Prime Farmland is defined under the FMMP as "… farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields." Land must have been cropped at some time during the 4 years before the mapping date to be included in these classifications (DOC 2005).

Farmland Protection and Countywide Land Use Trends

Since 1965, the State has encouraged landowners to protect agriculture and open space via the California Land Conservation Act of 1965, commonly referred to as the Williamson Act. Under this law, agricultural, recreational, and other related open space uses are protected with property tax incentives when the landowner enters into a

restrictive use contract with the State. Counties benefit when they formally adopt the program as they are then able to claim Open Space Subvention Act Payments that partially replace property tax losses associated with Williamson Act enrollees. The DOC estimates that Williamson Act Contracts save agricultural landowners from 20 percent to 75 percent in property tax liability each year.

Yolo County administers the Williamson Act contracts within the study area. The program is intended to preserve farmland although a landowner could have other activities on the same land, including a permitted mining operation or processing operations for agricultural products. The annually renewing 10-year period clause in the contract automatically renews the contract each year. Either party to the contract may file a "notice of non-renewal," which ends the automatic renewal; however, the property will remain subject to the contract for the remaining 9-year term of the contract. Outright cancellations and recisions of the contracts, which can be initiated only by the landowner, are subject to specific legal findings supported by substantial evidence by the county or city involved. There has been only one instance of cancellation in Yolo County throughout the 39-year history of the Williamson Act (Yolo County 2005).

By state law, only land located in an agricultural preserve is eligible for a Williamson Act contract. In Yolo County, this agricultural preserve has the zoning designation A-P. Yolo County currently has almost 423,119 acres enrolled in Williamson Act contracts. Of that, 244,578 acres are classified as Prime and 178,410 acres are non-prime (DOC 2003).

Yolo County has approximately 270,403 acres of prime agricultural land (Capability Class I, II, and portions of III), which account for 48% of the total agricultural land in the County. Yolo County has the lowest loss of agricultural land compared to other counties in the state, and is second lowest to Kings County in percentage loss of Prime Farmland. Factors that contribute to these statistics in Yolo County include restrictive land use policies, the high amount of land enrolled in Williamson Act contracts, and the natural barrier formed by the Yolo Causeway.

Agricultural crops reports from 1963 to the present indicate that small grains such as barley and wheat and other field crops have been the County's primary agricultural crops. Although tomato processing was a large industry in the County in the past, recently there has been a sharp decline due to the closure of two large canneries. In 1999, total agricultural revenues in Yolo County amounted to $339.9 million, up from $276.6 million in 1998 and $297.8 million in 1994. The leading crop was process tomatoes, at $132.7 million, with approximately 67,000 acres in production. Other important crops included wine grapes, seed crops, rice, and alfalfa (Yolo County 2002c).

Consistency with Federal and State Farmland Protection Policies

Loss of farmland is an important concern that is captured by the development of federal, state, and local policies calling for protection of Prime, Unique, or Statewide Important Farmland. Under the Federal Farmland Protection Policy Act (FPPA) (Subtitle I of Title XI, Section 1539–1549), projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by, or with the assistance of, a federal agency. However, as the U.S. Department of Agriculture's Farmland and Conversion Impact Rating form advises, "The purpose of the rating process is to insure that the most valuable and viable farmlands are protected from development projects sponsored by the Federal Government ... Accordingly, a site with a large quantity of non-urban land surrounding it will receive a greater number of points for protection from development." The form advises that the Land Evaluation-Site Assessment System (LESA) "is used as a tool to help assess the options for land use on an evaluation of productivity weighed against commitment to urban development." (USDA Farmland Conversion Impact Rating Form AD-1006 [10-83].)

Under the California LESA model, the Proposed Action would not qualify as "Land Committed to Nonagricultural Use" as such land is designated as having received discretionary development approvals such as a tentative subdivision map, tentative or final parcel map, or recorded development agreement (DOC Agricultural

LESA Model 1997 Instruction Manual [Manual]). In contrast, the Proposed Action falls within the California LESA model definition of "protected resource lands." The model defines protected resource lands as "those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following: publicly owned lands maintained as park, forest, or watershed resources; and lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses". Because the Proposed Action concerns protected resource lands and not "Land Committed to Nonagricultural Use" by virtue of urban development, evaluation under the LESA Model was not deemed appropriate. Such a determination by a lead agency is consistent with CEQA Statutes Section 21095, which makes use of LESA an "optional methodology."

3.1.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant land use or agricultural impact if it would:

- physically divide an established community;
- conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect;
- conflict with any applicable habitat conservation plan or natural community conservation plan;
- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use;
- conflict with existing zoning for agricultural use, or a Williamson Act contract; or
- involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use.

3.1.3 ENVIRONMENTAL CONSEQUENCES

LAND USE

Implementing the Proposed Action would not result in the physical division of an existing community. The project area and surrounding vicinity consist of agricultural land with scattered rural residences. The Proposed Action would construct setback levees that would be consistent with the surrounding farmland, and the Proposed Action would not create any barriers to community travel or communication. Because the project vicinity contains only a few scattered rural residences, implementation of the Proposed Action would not physically divide an established community. Therefore, there would be **no impact** on any existing communities.

The project area is within the Cache Creek Area Plan, which consists of the OCMP and the CCRMP. The project area is not identified by the OCMP as an area where mining activities are planned to occur in the future (Yolo County 1996). Therefore, there would be **no impact** related to the OCMP.

Construction of the setback levees for additional flood protection in the event of continued bank erosion would be consistent with the goals and policies established by the CCRMP, including coordinating land uses and improvements along Cache Creek so that the adverse effects of flooding and erosion are minimized (Goal 2.2-3); providing flood management as required to protect the public health and safety (Objective 2.3-1); designing and implementing a more stable channel configuration that will convey a 100-year flood event (Objective 2.3-3);

protecting permanent in-channel improvements (e.g., pipelines, bridges, levees, and dams) from structural failure caused by erosion and scour (Objective 2.3-4); managing Cache Creek so that the needs of the various uses dependent upon the creek, such as flood protection, wildlife, groundwater, structural protection, and drainage, are appropriately balanced (Objective 2.3-7); and managing Cache Creek to reduce the loss of farmland from erosion and increase the recharge potential of the channel (Objective 7.3-3).

The project area is within the boundaries of the proposed Yolo County HCP/NCCP, which is currently under development. The purpose of the HCP/NCCP will be to promote biological conservation in conjunction with economic and urban development in the plan area. The HCP/NCCP will describe the measures that local agencies will perform to conserve biological resources, obtain permits for urban growth and public infrastructure projects, and continue to maintain the rich agricultural heritage and productivity of the county. Implementation of the Proposed Action would not in any way conflict with the provisions or otherwise affect implementation of the HCP/NCCP. As the HCP/NCCP has not yet been adopted, and the Proposed Action appears consistent with the HCP/NCCP objectives to date, there would be **no impact** related to the proposed HCP/NCCP.

The Proposed Action would be in compliance with the land use plans applicable to the project area. The Proposed Action would not result in a conflict with existing or surrounding land uses, nor would it divide a community. The Proposed Action would not generate adverse conditions for the adjacent properties and would not diminish or prevent agricultural uses on adjacent lands. Therefore, the Proposed Action would have **no impact** on the overall existing land use and planning issues.

AGRICULTURAL RESOURCES

The Proposed Action would use 3.11 acres of Prime Farmland for Site 1 and 1.95 acres of Prime Farmland for Site 2, resulting in a total of 5.06 acres of Prime Farmland that would be taken out of production. These acreages include the footprint of the proposed setback levees, the areas between the proposed new levees and the existing levee, and an additional 20 feet on the landside of the levees that could be used in the future to raise the setback levees. As such, the Proposed Action would change a portion of the project area's land uses from agricultural uses to non-agricultural uses.

Approximately 1 acre for Site 1 and 2 acres for Site 2 would be temporarily disturbed during construction of the setback levees to provide access and staging areas for construction vehicles. Impacts on agricultural land resulting from these access and staging areas would be temporary, and these areas would be returned to agricultural uses after completion of the Proposed Action.

Construction of the setback levees is consistent with historic flood control approaches in the project area. It has been determined, however, that the existing levees do not provide adequate flood protection for surrounding land, most of which is agricultural land. The purpose of the proposed setback levees is to improve flood protection of farmland, so it implements an objective that is supportive of and beneficial to continued agricultural use of the protected lands. If the setback levees are not constructed, a large amount of farmland and associated agricultural infrastructure and equipment would be at risk of substantial damage from flooding, in the event of a levee failure. Flood damage to this amount of farmland would be substantially detrimental to Yolo County agriculture. The occupation of 5.06 of the 244,578 acres of Prime Farmland enrolled in Williamson Act contracts in Yolo County for construction of the setback levees would represent a conversion of a small percentage (0.002%) of these lands to non-agricultural uses. Recognizing the benefit of flood protection for all of the farmland to the north of Cache Creek, the trade-off of ceasing agricultural operations on 5.06 acres represents a less-than-significant commitment of agricultural land to achieve the objective of large-scale farmland flood protection. Conversion of this amount of farmland would not represent a significant impact individually or cumulatively to agricultural production at any scale (local or regional). Because a very small percentage of agricultural land would be converted to achieve the beneficial purpose of protecting a much larger area of agricultural land from flooding, the net effect on agricultural resources would be **less than significant**.

Because the setback levee at Site 1 would be placed approximately 160 feet from the existing levee, and the setback levee at Site 2 would be placed approximately 50 feet from the existing levee along Cache Creek, it would not adversely affect the overall use of the area for agriculture. The Proposed Action would not stop or hinder the agricultural practices that occur on neighboring properties. Landowners directly affected by the project would be fully compensated for the portions of land needed for construction of the setback levees. Any potential impacts to farming operations would also be fully mitigated including replacement of wells, maintaining access to fields, compensating landowners for any crop damage, and maintaining water distribution to fields. In addition, the Proposed Action would benefit neighboring farmed properties by providing additional flood protection.

The Proposed Action would not involve land development activities (i.e., residential subdivisions, or commercial or industrial land uses) that would directly or indirectly induce changes in the use of surrounding agricultural land, such as the need for schools, public services, etc. The Proposed Action would not induce new residential, commercial, or industrial land development activities to occur in the future. Project facilities would be confined to the project area and no substantial new infrastructure would be required off-site. Therefore, impacts involving changes in the existing environment, which, due to their location or nature, could result in conversion of farmland to non-agricultural uses, would be **less than significant**.

3.2 AESTHETICS

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**Aesthetics.** Would the project:				
	a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
	b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
	c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
	d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

This section discusses the existing aesthetic resources within the project area, any effects the Proposed Action may have on those resources, and mitigation measures to reduce effects, if needed.

3.2.1 AFFECTED ENVIRONMENT

The project area is characterized by agricultural lands and views of Cache Creek (Exhibits 3.1-1 and 3.2-1). The creek is vegetated with a mix of native and nonnative vegetation and has steep, eroding banks. Other visual features in the project area include overhead utility lines and rural county roads. There are no State-designated visual resources within the project area. Within the project vicinity, State Highway (SH) 16 is eligible for a scenic highway designation (from Capay to its intersection with SH 20) (USACE 2002). Nighttime views within the project area are typical of those within an agricultural setting. Sources of nighttime lighting include the city of Woodland, traffic on I-5, and scattered rural residences. The general character of the surrounding area is described below:

- **North:** Lands to the north of the project area consist of plowed agricultural fields. There is also one residence, a private driveway, and County Road 97B to the north of the project area.
- **South:** To the south of the project area is Cache Creek, which consists mostly of nonnative vegetation and steeply eroding banks. A number of residences line the southern bank of the creek, but are located high above the low-water channel.
- **East:** Lands to the east include plowed agricultural fields and walnut orchards. The existing levee road is also to the east of the project area.
- **West:** Lands to the west consist of plowed agricultural fields and views of Cache Creek as it bends to the north.

3.2.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into

Source: EDAW 2005

Agricultural Lands at Site 2 **Exhibit 3.2-1**

Source: EDAW 2005

Cache Creek at Site 1 looking Downstream **Exhibit 3.2-2**

account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant visual impact if it would:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

3.2.3 ENVIRONMENTAL CONSEQUENCES

Although SH 16 is eligible for a scenic highway designation, construction and operation of the setback levees would not be visible from SH 16 or any other scenic vistas. The setback levees would be consistent with the visual character of the project area and would not substantially alter views of the project area. Construction and operation of the setback levees would not generate any new sources of nighttime lighting or glare. Although construction of the setback levees would change the views within the project area, they would not change the views from any scenic highways or vistas, nor would they introduce nighttime lighting or glare to the project area. The setback levees would also be consistent with the visual character of the project area; therefore, the Proposed Action would have **a less-than-significant** impact on visual resources. No mitigation measures are required.

3.3 AIR QUALITY

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III.	**Air Quality.**				
	Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations.				
	Would the project:				
	a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐
	b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
	c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
	d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
	e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

This section includes a summary of applicable regulations, a description of ambient air quality conditions, and an analysis of potential short-term construction and long-term operational-source air quality impacts of the Proposed Action. Mitigation measures are recommended as necessary to reduce any potentially significant air quality impacts to a less-than-significant level.

3.3.1 AFFECTED ENVIRONMENT

The project area is located in Yolo County near the town of Yolo at LM 0.8 and 1.1, which is under the jurisdiction of the Yolo-Solano Air Quality Management District (YSAQMD). With respect to ozone, Yolo County is currently designated as a serious nonattainment area for the state 1-hour and national 8-hour standards (California Air Resources Board 2005, EPA 2005). Yolo County is also designated as a nonattainment area with respect to state PM_{10} (i.e., respirable particulate matter with an aerodynamic diameter of 10 micrometers or less).

In compliance with the California Clean Air Act (CCAA), YSAQMD submitted the 1991 Air Quality Attainment Plan (AQAP) to primarily address the nonattainment status for ozone, and to a lesser extent PM_{10} and carbon monoxide (CO). CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plan must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. CCAA requirements for a first triennial progress report and revision of the 1991 AQAP were fulfilled with the preparation and adoption of the 1994 Ozone Attainment Plan (OAP). The OAP stresses attainment of ozone standards and focuses on strategies for reducing reactive organic gas (ROG) and nitrogen oxide (NO_X) emissions. It promotes active public involvement, enforcement of compliance with YSAQMD rules and

regulations, public education in both the public and private sectors, development and promotion of transportation and land use programs designed to reduce vehicle miles traveled (VMT) within the region, and implementation of stationary and mobile-source control measures. OAP became part of the State Implementation Plan (SIP) in accordance with the requirements of the federal Clean Air Act Amendments (CAAA) and amended the 1991 AQAP. However, at that time, the region could not show that the national ozone (1-hour) standard would be met by 1999. In exchange for moving the deadline to 2005, the region accepted a designation of "severe nonattainment" coupled with additional emission requirements on stationary sources. Additional triennial reports were also prepared in 1997, 2000, and 2003 in compliance with CCAA that act as incremental updates.

As a nonattainment area, the region is also required to submit a rate-of-progress milestone evaluation in accordance with CAAA. Milestone reports were prepared for 1996, 1999, and 2002. These milestone reports include compliance demonstrations that the requirements have been met for the Sacramento nonattainment area, which includes Yolo County. The air quality attainment plans and reports present comprehensive strategies to reduce ROG, NO_X, and PM_{10} emissions from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations; enhancement of CEQA participation; implementation of a new and modified indirect source review program; adoption of local air quality plans; and stationary-, mobile-, and indirect-source control measures.

In July 1997, EPA promulgated a new 8-hour ozone standard. This change modified the standard for ambient ozone from 0.12 ppm (parts per million) averaged over 1 hour to 0.08 ppm averaged over 8 hours. In general, the 8-hour standard is more protective of public health and more stringent than the 1-hour standard. The promulgation of this standard prompted new designations and nonattainment classifications in June 2004 and resulted in the revocation of the 1-hour standard in June 2005 (McKee, pers. comm., 2005). As stated above, in June 2004 the region was designated as a nonattainment (serious) area for the national (8-hour) ozone standard with an attainment deadline of June 2013.

Although the region has made significant progress in reducing ozone, a problem has arisen with regard to another requirement set forth in CAA. The region's transportation plan must conform and thus show that it does not harm the region's chances of attaining the ozone standard. The SIP is tied to a "motor vehicle emissions budget" and thus, transportation planners must ensure that emissions anticipated from plans and improvement programs remain within this budget. The region is not required to update SIP before the ozone (8-hour) plans are due in 2006. However, since a conformity lapse began October 4, 2004, an expedited process to prepare a plan is underway (SMAQMD 2005).

3.3.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant air quality impact if it would:

- conflict with or obstruct implementation of the applicable air quality plan,
- violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors),
- expose sensitive receptors to substantial pollutant concentrations, or
- create objectionable odors affecting a substantial number of people.

3.3.3 ENVIRONMENTAL CONSEQUENCES

SHORT-TERM CONSTRUCTION EMISSIONS

Construction emissions are described as "short term" or temporary in duration and have the potential to represent a significant impact with respect to air quality, especially fugitive dust emissions (PM_{10}). Fugitive dust emissions are primarily associated with site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and miles traveled by construction vehicles on-site and off-site. ROG and NO_X emissions are primarily associated with gas and diesel equipment exhaust and the application of architectural coatings. With respect to the Proposed Action, construction of the setback levees would result in the temporary generation of ROG, NO_X, and PM_{10} emissions from site preparation (e.g., excavation, grading, and clearing), material transport, and other miscellaneous activities. Approximately 800 round trips for construction equipment would be needed for construction of the setback levees. Fill material for the setback levees would be hauled in from a commercial source. Several commercial borrow facilities are located within 15 miles of the project area including Schwarzgruber, Teichert (Woodland) and Granite Woodland. Because several commercial facilities are located within 15 miles of the project area, a maximum of 30 miles round trip was assumed for each haul trip. There would also be additional truck trips associated with worker commute trips.

Because of the project's linear nature, short-term construction-generated emissions of ROG, NO_X, and PM_{10} were modeled using the Road Construction Emissions Model, Version 5.1 (SMAQMD 2005), and EPA-air pollutant emission factors (AP-42) (EPA 1995). Input parameters were based on default model setting and information (e.g., number and type of equipment, amount of material transport) provided by DWR (Sanchez, pers. comm. 2006). The modeled maximum daily construction emissions are summarized in Table 3.3-1 and described in more detail below and in Appendix A.

Table 3.3-1
Summary of Modeled Maximum Short-Term Construction-Generated Emissions

Source	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)
Site 1 Levee Construction (2006)			
Mobile Equipment Exhaust[1]	10	77	4
Fugitive Dust	-	-	178
Total Daily Unmitigated[2]	**10**	**77**	**182**
Site 2 Levee Construction (2006)			
Mobile Equipment Exhaust[1]	9	76	4
Fugitive Dust	-	-	206
Total Daily Unmitigated[2]	**9**	**76**	**210**
YSAQMD Significance Thresholds	**82**	**82**	**150**

[1] Accounts for employee commute trips, onsite heavy-duty construction equipment, and material transport (e.g., soil and aggregate base).
[2] Assumes construction activities on Site 1 would not occur simultaneously with those on Site 2.
See Appendix A for modeling results and assumptions.
Source: Data Modeled by EDAW 2006

Based on the modeling conducted, levee construction would result in worst-case maximum unmitigated daily emissions of approximately 10 pounds/day (lb/day) of ROG, 77 lb/day of NO_X, and 210 lb/day of PM_{10}. Daily unmitigated emissions of PM_{10} would exceed YSAQMD's significance thresholds of 150 lb/day. Thus, construction-generated emissions could violate an air quality standard, contribute substantially to an existing or

projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. In addition, construction-generated emissions could result in a cumulatively considerable net increase of criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard. As a result, this impact is considered potentially significant. Implementation of the following Mitigation Measure 3.3-1 would reduce short-term construction-generated emissions to a less-than-significant level.

Mitigation Measure 3.3-1: Implement Applicable Measures to Reduce Short-Term Construction Generated Emissions.

To the extent feasible the Reclamation Board and USACE will implement the following measures to reduce short-term construction-related air quality impacts to a less-than-significant level:

- All disturbed areas, including storage piles, which are not being actively used for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions using application of water or by pre-soaking.
- All activities shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.
- Following the addition of materials to, or the removal of materials from, the surfaces of outdoor storage piles, piles shall be effectively stabilized of fugitive dust emissions using sufficient water or chemical stabilizer/suppressant.
- Trackout (mud and dirt from construction equipment on roadways) shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Limit traffic vehicle speeds on unpaved roads to 15 miles per hour (mph).
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from adjacent project areas with a slope greater than 1%.
- Suspend excavation and grading activity when winds exceed 20 mph (wind speeds will be measured by an on-site anemometer or at the U.C. Davis Climate Station).
- Limit area subject to excavation, grading, and other construction activity at any one time.
- The same construction activities at Site 1 shall not occur simultaneously with those at Site 2 or Site 3, unless a mitigation fee, to be determined in coordination with the YSAQMD, is paid to the YSAQMD to offset construction-generated emissions in excess of the recommended-thresholds.
- Construction equipment shall be maintained in optimum running condition.
- The project representative shall provide a plan, for approval by the lead agency and YSAQMD, demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20% NO_x reduction and 45% particulate reduction compared to the most recent ARB fleet average at time of

construction. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

- The project representative shall submit to the lead agency and YSQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide YSAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

- The project representative shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. Any equipment found to exceed 40% opacity (or Ringelmann 2.0) shall be repaired immediately, and the lead agency and YSAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The YSAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supercede other YSAQMD or state rules or regulations.

Assuming a 5% minimum reduction in ROG, NO_X, and PM_{10} emissions from heavy-duty diesel equipment and up to a 75% reduction in fugitive PM_{10} emissions with implementation of mitigation, maximum daily short-term construction-generated emissions would be reduced to approximately 9.5 lb/day of ROG, 73.2 lb/day of NO_X, and 55.3 lb/day of PM_{10}, which would not exceed YSAQMD's thresholds.

LONG-TERM OPERATIONAL (REGIONAL) EMISSIONS

As discussed in Section 3.5, Traffic and Circulation, the long-term operation of the Proposed Action would not cause a significant increase in vehicle traffic on the local roadway system. Thus, operation of the Proposed Action would not increase long-term regional ROG, NO_X, and PM_{10} or local CO emissions associated with increases in mobile sources. In addition, implementation of the Proposed Action would not increase vehicle miles traveled (VMT) and, consequently, would not conflict with or obstruct implementation of YSAQMD's air planning efforts. Furthermore, construction of the Proposed Action is not anticipated to result in the operation of any major stationary emission sources. Thus, long-term operational emissions would not violate an air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. In addition, operational emissions would not result in a cumulatively considerable net increase of criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard or conflict with or obstruct implementation of the applicable air quality plan. As a result, this impact is considered less than significant.

TOXIC AIR EMISSIONS

Construction of the Proposed Action would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Particulate exhaust emissions from diesel-fueled engines (diesel PM) were identified as a Toxic Air Contaminant (TAC) by the California Air Resources Board (ARB) in 1998. Construction of the Proposed Action would generate diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. As described above, the dose to which the receptors are

exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the Proposed Action (Salinas, pers. comm., 2004). Because of the dispersive properties of diesel PM (Zhu and Hinds 2002) and the temporary nature of the mobilized equipment use, short-term construction-generated TAC emissions would not expose sensitive receptors to substantial pollutant concentrations. As a result, this impact is considered less than significant.

ODORS

Construction of the Proposed Action would result in diesel exhaust emissions from on-site construction equipment. The diesel exhaust emissions would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. In addition, no existing odor sources are located in the vicinity of the project area, and the Proposed Action would not include the long-term operation of any new sources of odor. Thus, the operation of the Proposed Action would not create objectionable odors affecting a substantial number of people. As a result, this impact is considered less than significant.

3.4 NOISE

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI.	**Noise.** Would the project result in:				
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☒	☐	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

This section includes a summary of applicable regulations, a description of ambient-noise conditions, and an analysis of potential short-term construction and long-term operational-source noise impacts of the Proposed Action. Mitigation measures are recommended as necessary to reduce significant noise impacts to a less-than-significant level.

3.4.1 AFFECTED ENVIRONMENT

The project area is located in Yolo County, California, near the town of Yolo at LM 0.8 and 1.1 of Cache Creek. Existing noise-sensitive land uses[1] in the vicinity include rural residences off of County Roads 97A and B, of which the closest are approximately 250 and 200 feet to the southeast of Sites 1 and 2, respectively.

The existing noise environment within the project area is primarily influenced by surface-transportation noise emanating from vehicular traffic on nearby roadways (e.g., County Roads 97A and B, and I-5) and the Southern Pacific Railroad, and routine agricultural activities (e.g., use of heavy-duty equipment). Intermittent noise from outdoor activities at the surrounding residences (e.g., people talking, operation of landscaping equipment, car doors slamming, and dogs barking), though minor, also influences the existing noise environment.

1 Noise-sensitive land uses generally include those uses where exposure would result in adverse effects (e.g., sleep disturbance, annoyance), as well as uses where quiet is an essential element of their intended purpose. Residences are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other sensitive land uses include hospitals, convalescent facilities, parks, hotels, churches, libraries, and other uses where low interior noise levels are essential.

As stated above, one of the dominant noise sources in the vicinity of the project area is vehicular traffic on nearby roadways. Traffic on I-5 contributes the highest noise levels from this source in the project area. Existing roadway traffic noise levels were modeled for I-5 using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model (FHWA 1988) based on traffic data obtained from the California Department of Transportation (Caltrans) (Caltrans 2005a and 2005b).

Table 3.4-1 presents the modeled Community Noise Equivalent and Day-Night noise levels (CNEL/ Ldn) at 50 feet from the centerline of the near travel lane and the distance from the roadway centerline to the 55-, 60-, 65-, and 70-dBA CNEL/Ldn contours for existing average daily traffic (ADT) volumes. Based on the modeling conducted, existing traffic on I-5 would result in noise levels between 60 and 65, and 55 and 60 CNEL/Ldn at approximately 1,500 and 3,800 feet, respectively, which are the distances between the residences closet to Sites 1 and 2 from I-5.

Table 3.4-1
Modeled Existing Vehicular Traffic-Noise Levels[1]

Roadway Segment	Distance (ft) from Roadway Centerline to CNEL/L_{dn} (dBA)				CNEL/L_{dn} (dBA) 50 Feet from Centerline of Near Travel Lane
	70 CNEL	65 CNEL	60 CNEL	55 CNEL	
I-5 to the east of Sites 1 and 2 (south of County Road 17 Interchange)	430.3	921.9	1983.6	4271.7	80.42

Notes: Modeled noise levels do not consider any shielding or reflection of noise by existing structures or terrain features or noise contribution from other sources and where:

- A-weighted Decibel (dBA) is a measure on a logarithmic scale which indicates the squared ratio of sound pressure to a reference sound pressure. A-weighted (A) refers to the specific frequency-dependent rating scale that is used to approximate human response.
- Community Noise Equivalent Level (CNEL) is the energy-average of the A-weighted noise levels during a 24-hour period with 5 dBA added to the evening (7 to 10 p.m.) hours and 10 dBA to the night (10 p.m. to 7 a.m.) hours.
- Day-Night Level (L_{dn}) is the energy-average of the A-weighted noise levels during a 24-hour period with 10 dBA added to the night (10 p.m. to 7 a.m.) hours.

[1] See modeling results in Appendix B for further details.

Source: Data modeled by EDAW in 2006

The Noise Element of the Yolo County General Plan contains the following policies:

- N1. *Noise, Basic*. Yolo County shall regulate, educate, and cooperate to reduce excessive noise levels within the environment and particularly those noise levels which impinge upon the home environment.
- N2. *Noise, Land Use*. Yolo County shall regulate the location and operation of land uses to avoid or mitigate harmful or nuisance levels of noise.
- N3. *Noise, Prevent and Control*. Noise shall be prevented, avoided, and suppressed by controlling noises at the source, providing barriers or buffers, implementing a noise ordinance, and implementing wise land use planning that considers noise effects and prevention.
- N4. *Noise Ordinance*. Yolo County shall adopt a comprehensive Noise Ordinance.
- N5. *Development Review*. Yolo County shall review all new development and redevelopment in terms of the Standards of Noise Avoidance or Control.
- N6. *Basic Compatibility*. Yolo County shall review all new developments, public and private, for noise compatibility with surrounding uses to protect the occupants of nearby lands from undesirable noise levels and discourage new residential development in areas subject to legal, long-term, excessive noise.

- N7. *Development Control/Noise*. Yolo County shall review development plans for noise compatibility of the proposed use with the surrounding uses and planned uses, and shall incorporate noise reduction, avoidance, or mitigation techniques as necessary.

- N8. *Implementation*. Yolo County shall achieve these policies by the application of available review, guidance, and regulatory devices including placing future development within areas of noise compatible land uses; supporting efforts to reduce noise levels; coordination with transportation agencies to reduce noise through design and location of new facilities; and application of design standards to avoid or mitigate noise problems, including structure design, materials, and location.

- N9. *Mitigation and Reduction*. Yolo County shall require mitigation to reduce noise to acceptable levels throughout the County and particularly within home environments. Reductions of noise shall be sought at the source, along its path, and/or at receiver points if such noise is determined to be excessive.

- N10. *County Noise Control*. Yolo County shall develop a program to reduce or control noise generated from sources under the County's jurisdiction.

- N11. *Standards*. Yolo County shall set and enforce measurable standards for noise reduction and control on construction projects, equipment purchase contracts let by the County, and as part of development review of private construction project subject to approval by the County.

- N12. *Noise and Safety/Airports*. Yolo County shall coordinate with other governmental agencies as well as the private sector in efforts to combat, alleviate, or mitigate excessive, hazardous, or annoying noise.

- N13. *Coordination*. Yolo County shall coordinate with other governmental agencies as well as the private sector in efforts to combat, alleviate, or mitigate excessive, hazardous, or annoying noise.

- N14. *Noise Insulation*. Noise insulation standards shall be enforced by the Building Department.

- N15. *Noise/State Highways*. Yolo County shall encourage continuation of the State Roadway Noise Abatement Program(s).

- N16. *Integrate with Other Elements*. The Noise Element shall be integrated with Land Use, Safety, Open Space, Scenic Highways, Circulation, Conservation, and other elements of the General Plan as well as the Energy Plan.

According to the Yolo County Planning Department, a noise ordinance has not been adopted (Caruso, pers. comm., 2005).

3.4.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant noise impact if it would:

- expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance, or applicable standards of other agencies;

- expose persons to or generate excessive groundborne vibration or groundborne noise levels;

- create a substantial permanent increase in ambient noise levels in the project vicinity above levels without the action;
- create a substantial temporary or periodic increase in ambient noise levels in the project area above levels without the action;
- be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport; or
- be in the vicinity of a private airstrip.

3.4.3 ENVIRONMENTAL CONSEQUENCES

SHORT-TERM CONSTRUCTION SOURCE NOISE

Construction activities at Sites 1 and 2 would include site preparation (e.g., excavation, grading, and clearing), material transport, levee construction, and other miscellaneous activities. On-site construction equipment would include graders, dozers, and excavators. Noise levels for individual equipment can range from 79 to 101 dBA at 50 feet, as indicated in Table 3.4-2.

Table 3.4-2
Typical Construction-Equipment Noise Levels

Type of Equipment	Noise Level in dBA at 50 feet	
	Without Feasible Noise Control	With Feasible Noise Control1
Pile Driver	101	95
Dozer or Tractor	80	75
Excavator	88	80
Scraper	88	80
Front-end Loader	79	75
Backhoe	85	75
Grader	85	75
Crane	83	75
Truck	91	75

1 Feasible noise control includes the use of intake mufflers, exhaust mufflers, and engine shrouds in accordance with manufacturers' specifications.

Sources: U.S. Environmental Protection Agency 1971, Federal Transit Administration 1995

The simultaneous operation of on-site construction equipment could result in combined intermittent noise levels up to 90 dBA at 50 feet from the project area. Based on these noise levels and a typical noise-attenuation rate of 6 dBA per doubling of distance, exterior noise levels at noise-sensitive receptors located within 1,620 feet from the project area (e.g., rural residences) could exceed 60 dBA without feasible noise controls. Specifically, construction-generated noise levels could exceed 78 and 76 dBA at the closet rural residences at approximately 200 and 250 feet from Sites 1 and 2, respectively.

In most cases, the local noise ordinance contains standards for residential uses affected by construction source noise. In addition, noise from construction activities that do not occur during the more noise-sensitive hours (e.g.,

evening, nighttime, and early morning) is typically exempt from the provisions of the applicable ordinances. However, as discussed above, Yolo County has not adopted a noise ordinance or any other construction noise standards for which construction-generated noise levels would exceed. Nevertheless, if construction activities were to occur during the more noise-sensitive hours (e.g., evening, nighttime, and early morning) or construction equipment not properly equipped with noise control devices, construction-generated source noise could result in annoyance and/or sleep disruption to occupants of the nearby existing noise-sensitive land uses (e.g., rural residences) and create a substantial temporary increase in ambient noise levels in the project area. As a result, this impact is considered potentially significant. Implementation of Mitigation Measures 3.4-1 through 3.4-4 would reduce short-term construction source noise to a **less-than-significant** level.

Mitigation Measure 3.4-1: Maintain and Equip Construction Equipment with Noise Control Devices.

Construction equipment shall be properly maintained and equipped with noise control, such as mufflers, in accordance with manufacturers' specifications.

Mitigation Measure 3.4-2: Limit Construction to the Hours of 6 a.m. to 9 p.m.

Construction activities shall be limited to the hours of 6 a.m.–9 p.m., during which such activities are typically exempt from noise levels identified in applicable standards.

Mitigation Measure 3.4-3: Arrange Construction Equipment Travel to Minimize Disturbance to Occupied Residences.

Construction equipment travel shall be arranged to minimize disturbance to occupied residences.

Mitigation Measure 3.4-4: Designate a Disturbance Coordinator to Receive All Public Complaints.

A disturbance coordinator shall be designated and the person's telephone number conspicuously posted around the project area and supplied to nearby rural residences. The disturbance coordinator shall receive all public complaints and be responsible for determining the cause of the complaint and implementing any feasible measures to alleviate the problem.

LONG-TERM OPERATIONAL SOURCE NOISE

Long-term operation of the Proposed Action would not include any major stationary noise sources. In addition, as discussed in Section 3.5, Traffic and Circulation, the long-term operation of the Proposed Action would not increase vehicle traffic on the local roadway system. Noticeable increases of 3 dBA (CNEL/Ldn) do not typically occur without a substantial (i.e., doubling) increase in roadway traffic volumes. Consequently, the operation of the Proposed Action would not noticeably change traffic noise contours of area roadways. Thus, long-term operational stationary and vehicle source noise would not expose persons to or generate noise levels in excess of applicable standards, or create a substantial permanent increase in ambient noise levels in the project area. As a result, this impact is considered **less than significant**.

VIBRATION SOURCE NOISE

Construction activities have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Table 3.4-3 displays vibration levels for typical construction equipment.

As discussed above, on-site construction equipment would include graders, dozers, and excavators. According to the Federal Transit Administration (FTA), vibration levels associated with the use of bulldozers range from approximately 0.003 to 0.089 inches per second (in/sec) peak particle velocity (PPV) and 58 to 87 vibration

decibels (VdB referenced to 1 microinch per second [µin/sec] and based on the root mean square [RMS] velocity amplitude) at 25 feet, as shown in Table 3.4-3. Using FTA's recommended procedure for applying a propagation adjustment to these reference levels, predicted worst-case vibration levels of approximately 0.004 in/sec PPV and 69 VdB at the nearest rural residence (200 feet) could occur from use of large bulldozers. These vibration levels would not exceed Caltrans's recommended standard of 0.2 in/sec PPV (Caltrans 2002) with respect to the prevention of structural damage for normal buildings and FTA's maximum-acceptable vibration standard of 80 VdB (Federal Transit Administration 1995) with respect to human annoyance for residential uses. In addition, the long-term operation of the Proposed Action would not include any vibration sources. Thus, short-term construction or long-term operations and maintenance would not expose persons to or generate excessive groundborne vibration or groundborne noise levels. As a result, this impact is considered **less than significant**. No mitigation is required.

Table 3.4-3
Typical Construction-Equipment Vibration Levels

Equipment		PPV at 25 feet (in/sec)1	Approximate Lv at 25 feet2
Pile Driver (impact)	Upper range	1.518	112
	Typical	0.644	104
Pile Driver (sonic)	Upper range	0.734	105
	Typical	0.170	93
Large Bulldozer		0.089	87
Caisson Drilling		0.089	87
Trucks		0.076	86
Jackhammer		0.035	79
Small Bulldozer		0.003	58

[1] Where PPV is the peak particle velocity

[2] Where L_v is the velocity level in decibels (VdB) referenced to 1 µinch/second and based on the root mean square (RMS) velocity amplitude.

Source: Federal Transit Administration 1995

AIRCRAFT SOURCE NOISE

The Proposed Action is not located within 2 miles of an airport land use plan or a public airport, or in the vicinity of a private airport. Sunrise Dusters, a private airport, is located approximately 7 miles north of the project area. The nearest public airport to the project area is the Watts-Woodland located approximately 4 miles south of the project area. Given the distance from these airports and that the Proposed Action does not include the development of any noise-sensitive receptors, the Proposed Action would not expose people residing or working in the project area to excessive noise levels. The proposed action would have **no effect** from aircraft source noise.

3.5 TRAFFIC AND CIRCULATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Transportation/Traffic. Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b) Exceed, individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Result in inadequate parking capacity?	☐	☐	☒	☐
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☒	☐

This section discusses traffic and roadways in the project vicinity, potential effects resulting from the Proposed Action, and mitigation measures needed to reduce any significant effects to traffic and circulation.

3.5.1 AFFECTED ENVIRONMENT

STATE HIGHWAYS

SH 16 and I-5 are the primary highways in the project vicinity. Both SH 16 and I-5 provide north-south circulation within the project vicinity. I-5 lies northeast of the project area, and SH 16 is located south of the project area. With the exception of I-5, a four-lane highway, all other roads in the project area are two lanes.

COUNTY ROADWAYS

County roads in the project vicinity include County Road (CR) 97A, 97B, 96A, and 96B (north-south circulation) and CR 18, 18B, 19A, and 19B (east-west circulation).

TRAFFIC TYPES AND VOLUMES

All roadways within the project area are traveled by automobiles, trucks, motorcycles, emergency vehicles and, with the exception of I-5, agricultural equipment (USACE 2002). Traffic counts for I-5 in the project vicinity are presented below in Table 3.5-1.

Table 3.5-1 I-5 Traffic Counts							
I-5 Annual AADT		South			North		
Post Mile	Description	Peak Hr	Peak Mo	AADT	Peak Hr	Peak Mo	AADT
10.81	Jct. Rte. 16, County Road 18	2,900	35,500	29,000	2,850	32,500	27,500
12.34	Yolo Interchange, County Road 17	2,850	32,500	27,500	2,650	29,000	24,300
Source: Caltrans Traffic and Vehicle Data Systems Unit, 2004.							

Traffic counts for county roads within the project vicinity are presented in Table 3.5-2.

Table 3.5-2 County Road Traffic Counts	
Roadway Description	Average Daily Traffic (ADT)
CR 97A	165
CR 97B	–
CR 96A	95
CR 96B	99
CR 18 between CR 95B and CR 96B	39
CR 18B	–
CR 19A	–
CR 19B	–
Source: Suellen Coast at Yolo County, pers. comm. January 11, 2006.	

AIRPORTS

Two municipal airports and a number of private airports are located in Yolo County. Yolo County Airport is about 11 miles west of Woodland, and the University Airport at Davis is about 11 miles southwest of Woodland. Commercial flight services are provided by Sacramento International Airport about 20 miles east of Woodland (USACE 2002).

TRANSIT

The Yolo County Transportation District operates Yolobus, the public transportation for Yolo County. Yolobus serves Woodland, Davis, West Sacramento, Madison, Esparto, Capay, Dunnigan, Yolo, Southport, Knights Landing, and Winters. There are no bus routes that serve the project area.

BIKEWAYS

Bicycle facilities include Class I (off-street facilities), Class II (on-street bicycle lanes identified with signage and markings), and Class III (on-street bicycle routes identified by signage). There are no bikeways within the immediate project vicinity or within the project area (USACE 2002).

RAILROADS

The California Northern Railroad (CNRR) is the only railroad within the project vicinity. It travels alongside I-5 between Cache Creek and the city of Woodland/Yolo County line. CNNR is a branch of a larger line and locally it serves the community's industries. The train does not carry passengers; it is solely a freight train serving local demand. The train schedules depend on necessity and do not run on a consistent basis (USACE 2002).

3.5.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant traffic impact if it would:

- cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);
- exceed, individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;
- result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- result in inadequate emergency access;
- result in inadequate parking capacity; or
- conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

3.5.3 ENVIRONMENTAL CONSEQUENCES

The Proposed Action would not interfere with any Yolobus routes, the CNNR, or any bikeways or airports in the project vicinity; therefore, these modes of transportation will not be discussed further.

Borrow material for each setback levee would be hauled in from off-site. During construction, there would be approximately 800 round trips for construction equipment and haul trucks needed for construction of the setback levees. There would also be additional vehicle trips for construction worker commute trips. The increased traffic due to construction of the Proposed Action would be spread out over a 3-month period. Operation of the Proposed Action would not require any additional vehicle trips. Maintenance and monitoring of the setback levees would be consistent with the existing maintenance and monitoring schedule for levees in the project area. Because the increased traffic due to construction would be temporary and would be spread out over a 3-month period, and there would be no increased traffic due to operation of the setback levees, this impact would be **less than significant**.

The proposed alignment of the setback levee at Site 2 would obstruct the existing intersection of a private driveway and CR 97B in the project area. Approximately 60 feet of the existing CR 97B and 60 feet of the private driveway would need to be relocated. A new segment of CR 97B would be constructed diagonally to connect the

county road to the private driveway that exists to the west. The proposed location for the new road is shown in Exhibit 2-4. Current traffic on CR 97B is minimal; however, for residents in the project area that require use of CR 97B, temporary closure of the road would be potentially significant. Implementation of Mitigation Measure 3.5-1 would reduce this impact to a **less-than-significant** level.

Mitigation Measure 3.5-1: Prepare a Traffic Control Plan.

The construction contractor will coordinate with Yolo County to prepare a traffic control plan. This traffic control plan will include measures to ensure emergency access is maintained at all times. The plan may include, but is not limited to, the following measures:

- Access will be maintained for driveways and private roads;
- Construction warning signs will be posted in accordance with local standards or those set forth in the *Manual on Uniform Traffic Control Devices* (Federal Highway Administration 2001) in advance of the construction area and at any intersection that provides access to the construction area; and
- Traffic control personnel will be used to direct traffic, if necessary.

Implementation of this mitigation measure would reduce this impact to a less-than-significant level.

Adequate parking for construction vehicles would be provided within the project area. Employee vehicles and construction equipment would be parked in the construction staging areas and would not be parked along any roadways. Construction staging areas would be designed to accommodate the parking needs of construction equipment and construction personnel vehicles. Therefore, the Proposed Action would have a **less-than-significant** impact on parking.

Emergency access to the project area would be maintained at all times. Therefore, the Proposed Action would not reduce response times for emergency services, such as fire protection, police, and ambulance. This would be a **less-than-significant** impact.

The proposed setback levees would be designed to USACE standards, and the relocated road would be designed to Yolo County standards. Both the relocated road and the setback levees would be designed with proper slopes and ingress and egress. The road would not be designed with any sharp corners or hazardous features. Because these project features would be designed to the appropriate standards and would not cause an increase in hazards due to design features, this impact would be **less than significant**.

3.6 HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Hydrology and Water Quality. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	☐	☒	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

This section provides information on water quality and hydrology conditions in the project area, thresholds of significance to identify potentially significant effects, and mitigation if needed to reduce potentially significant project effects to hydrology and water quality.

3.6.1 AFFECTED ENVIRONMENT

HYDROLOGY

Cache Creek emanates from Clear Creek in Lake County and flows through a narrow and steep 30-mile long canyon to Capay Valley in Yolo County. It is fed by Bear Creek and the North Fork of Cache Creek with a total watershed of approximately 1,140 square miles. Mean annual runoff is approximately 374,000 acre-feet at the town of Yolo. Significant water diversions have occurred on Cache Creek since the mid- to late- 1800s. Today, Cache Creek flows are partially controlled by the dam at Indian Valley Reservoir on the North Fork of Cache Creek. Two diversions supply irrigation water to Capay Valley and large farm areas northwest and southwest of Woodland (EIP Associates et al. 1995).

Flow in Cache Creek has large seasonal and annual variability. Because of water diversions, there is also a significant spatial variation in flow along the creek. At Yolo, annual peaks have ranged from near zero to 40,000 cubic feet per second (cfs) (EIP Associates et al. 1995). Four major floods have been documented for the Cache Creek basin during the last half of the 20th century, and 20 severe floods have occurred since 1900. The most severe floods of recent years in the Cache Creek basin downstream from Clear Lake occurred in 1939, 1955, 1956, 1958, 1964 and 1965, 1970, 1983, 1995, and 1997 (USACE 2002).

Prior to significant gravel mining, Cache Creek was described as being a wide, relatively steep braided channel upstream from Yolo and a narrow, incised channel flowing in fine-grained overbank deposits and tule marsh downstream from Yolo (EIP Associates et. al. 1995). In general, average channel width in gravel-mined reaches of Cache Creek has decreased from historic conditions due to bridge and levee construction and aggregate extraction. Conversely, average channel depths have increased as a result of channel degradation and confinement by levees and bridges.

Downstream of Yolo, near the Yolo Bypass, the Cache Creek Settling Basin was constructed to prevent sediment being carried by Cache Creek from adversely affecting the hydraulic capacity of the Yolo Bypass through excess sediment deposition. It is bounded by levees on all sides and covers 3,600 acres. The basin was originally constructed by USACE in 1937. The levee heights and locations have been modified to control sediment deposition and enhance basin sediment storage (USACE 2002).

WATER QUALITY

Cache Creek watershed drains a large area that encompasses a wide variety of land uses. These land uses have the potential to contribute to water quality problems such as fecal coliform from septic systems and cattle; boron, mercury, and other minerals from geothermal springs and abandoned mines; fertilizers, pesticides, and herbicides from agriculture activities; and sediment from erosion. Although Cache Creek is not used as a municipal drinking water supply, water quality problems do affect wildlife, recreational, and agricultural uses along the creek. Fertilizer, pesticide, and herbicide levels in the creek are not of local concern (USACE 2003).

There is a local concern about high levels of boron in Cache Creek. Boron is a result of geothermal releases found in the upper reaches of the basin. Boron concentrations vary depending on the volume of flow in Cache Creek. During low flows in late spring, boron containing materials precipitate out on the rocks along the creek. In late fall, when flows increase, boron containing minerals are dissolved and carried into the Yolo Bypass and then to the Sacramento-San Joaquin River Delta.

Groundwater quality is generally very good except for localized areas along Cache Creek that contain high boron levels. Boron levels in these areas range from 2 to 4 parts per million (ppm), in comparison to background levels of 0.6 to 1.0 ppm in other parts of Yolo County (USACE 2002).

The Central Valley Regional Water Quality Control Board (Central Valley RWQCB) currently designates Cache Creek as an Impaired Water Body due to high levels of mercury in fish populations. Studies have indicated that Cache Creek is a major source of mercury to the Sacramento-San Joaquin Delta estuary. This has caused concern because the Delta is a highly favorable environment for methylation. The methylation of mercury is common in anaerobic environments. Methyl-mercury is more bio-available than metallic mercury and can be found in toxic concentrations in species at the top of food chains. Mercury is present throughout the basin, originating from geothermal springs, agricultural runoff, atmospheric deposition, and erosion of naturally mercury-enriched soils. However, the majority of mercury comes from mercury-laden mine and retort wastes. There are three inactive mercury-mining districts in the upper watershed, including Sulfur Bank Mercury Mine at Clear Lake, which is a Superfund site, and the Sulfur Creek and Knoxville mining districts. Elevated mercury concentrations have been observed in invertebrates and fish species sampled from Cache Creek (USACE 2002).

The Central Valley RWQCB listed Cache Creek on the EPA list of priority water bodies that do not meet beneficial uses. The Central Valley RWQCB developed Total Maximum Daily Load (TMDL) limits related to the Cache Creek mercury management strategy and released the draft TMDL report in November 2004. The final staff report for Basin Plan Amendments for Control of Mercury in the Cache Creek Watershed was adopted at a public hearing on October 21, 2005 (Central Valley RWQCB 2005).

3.6.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant water quality or hydrology impact if it would:

- violate any water quality standards or waste discharge requirements;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding;
- create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality;
- place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- result in inundation by seiche, tsunami, or mudflow.

3.6.3 ENVIRONMENTAL CONSEQUENCES

Construction and operation of the Proposed Action would take place on the landside of the existing levee. However, notches would be cut into the existing levees at each site to provide for drainage. These notches would be sloped to provide hydrologic connectivity between Cache Creek and the levee setback areas. Construction of the setback levees and degradation of portions of the existing levee would change the existing drainage patterns of the project area. Creating notches in the existing levee would ensure proper drainage of the project area; therefore, the Proposed Action would have a **less-than-significant** impact on hydrology in the project area.

Notching of the existing levees could contribute to increased sediment to Cache Creek. Approximately 10 feet of the existing levee at Site 1, and 20 feet of the existing levee at Site 2 would be degraded to the elevation of the levee setback areas. These exposed slopes could be subject to rainfall and erosion and could cause temporary discharges of sediment and other contaminants in stormwater runoff to Cache Creek. Large-scale erosion and generation of contaminated runoff are highly unlikely, and there would be no fill associated with this action. Because some soil erosion and sedimentation of Cache Creek could occur; this is a potentially significant impact on water quality. Implementation of Mitigation Measure 3.6-1 would reduce this impact to a **less-than-significant** level.

Mitigation Measure 3.6-1: Prepare a Storm Water Pollution Prevention Plan.

Before the start of any construction work, site grading, or excavation associated with the setback levees, the construction contractor shall prepare a Storm Water Pollution Prevention Plan (SWPPP) detailing measures to control soil erosion and waste discharges from the construction areas and submit a Notice of Intent (NOI) to the Central Valley RWQCB for stormwater discharges associated with general construction activity. The SWPPP will include an erosion control and restoration plan, a water quality monitoring plan, a hazardous materials management plan, and postconstruction Best Management Practices (BMPs). The BMPs will be maintained until all areas disturbed during construction have been adequately stabilized.

The specific BMPs that will be incorporated into the SWPPP will be determined during the final stages of project design. However, the SWPPP is likely to include one or more of the following standard practices, which are commonly used during the construction and postconstruction phases of levee setback projects.

- Soil and Vegetation Disturbance. Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, spoils and soil stockpile areas, and equipment exclusion zones prior to the commencement of any construction operations.

- Hazardous Materials. Use and store hazardous materials, such as vehicle fuels and lubricants, in designated staging areas located away from surface waters. Implement a spill prevention and control plan that specifies measures that will be used to prevent, control, and clean up hazardous materials spills.

All contractors conducting construction-related work shall be required to implement the SWPPP to control soil erosion and waste discharges of other construction-related contaminants. The general contractor and subcontractor(s) conducting the work shall be responsible for constructing or implementing, regularly inspecting, and maintaining the measures in good working order.

3.7 BIOLOGICAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. Biological Resources. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☒	☐	☐

This section describes the existing conditions of biological resources within the project area, potentially significant effects from implementation of the Proposed Action, and mitigation, if necessary, to reduce the potentially significant effects of the Proposed Action.

3.7.1 AFFECTED ENVIRONMENT

The project area comprises two levee setback sites (Site 1 and Site 2) located along the landside of the north levee of Cache Creek west of the town of Yolo. Elevations in the project area range from 85 to 90 feet above mean sea level. Topography in the vicinity of the project area is flat except for the bed of Cache Creek, which lies approximately 40 feet below the level of surrounding lands.

Information on biological resources of the Cache Creek Levee project area is based on a review of pertinent literature and databases, and surveys conducted at each of the sites by EDAW biologists on November 18 and 22, 2005 and January 11, 2006. The surveys included a reconnaissance-level investigation of each site and a protocol-

level elderberry shrub (*Sambucus mexicana*) survey. The purposes of these surveys were to characterize biological resources present in the project area and to determine the potential for sensitive biological resources to occur in the project area.

Habitats in the project area include agricultural lands, one developed road (at Site 2), and ruderal vegetation. On the creek side of the existing levee (south of Site 2 and southeast of Site 1), remnant patches of Great Valley oak (*Quercus lobata*) riparian forest grow on the upper banks of the creek. Lands to the north of the project area are characterized by agricultural fields and walnut orchards.

At the time of the site visits, the agricultural fields near the project area were disked and fallow; however, the remains of a tomato crop were evident. The agricultural fields at Site 1 contained orchards in the recent past, as shown from aerial photographs, but the orchards have been removed. Two large valley oaks are present alongside County Road 97B at Site 2. Ruderal vegetation is present along the existing levee and at the sides of the agricultural fields bordering the levee and the county road. Ruderal species observed include Johnson grass (*Sorghum halapense*), Russian thistle (*Salsola tragus*), shortpod mustard (*Hirschfeldia incana*), prostrate pigweed (*Amaranthus blitoides*), prickly lettuce (*Lactuca serriola*), yellow star thistle (*Centaurea solstitialis*), lambs quarters (*Chenopodium album*), milk thistle (*Silybum marianum*), slender oats (*Avena barbata*), Italian ryegrass (*Lolium multiflorum*), and sow thistle (*Sonchus oleraceus*). Wildlife species observed that are characteristic of row crop agricultural and ruderal habitats include California ground squirrel (*Spermophilus beecheyi*), desert cottontail (*Sylvilagus audubonii*), killdeer (*Charadrius vociferous*), red-tailed hawk (*Buteo jamaicensis*), house finch (*Carpodacus mexicanus*), and American pipit (*Anthus rubescens*).

The patches of Great Valley oak riparian forest on the waterside of the levee within the project area are characterized by valley oak, coyote brush (*Baccharis pilularis*), bush tobacco (*Nicotiana glauca*), poison oak (*Toxicodendron diversifolium*), northern California black walnut (*Juglans californica* var. *hindsii*), California wild rose (*Rosa californica*), California grape (*Vitis californica*), and blue elderberry. Areas closer to the creek bed are dominated by species such as giant reed (*Arundo donax*), Fremont's cottonwood (*Populus fremontii*), willow (*Salix* spp.), and tamarisk (*Tamarix* sp.). Common riparian-associated wildlife species that were observed during the reconnaissance surveys include American mink (*Mustela vison*), northern flicker (*Colaptes auratus*), black phoebe (*Sayornis nigricans*), ruby-crowned kinglet (*Regulus calendula*), western scrub-jay (*Aphelocoma californica*), and belted kingfisher (*Ceryle alcyon*).

SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources include plants, animals, and habitats that have been afforded special recognition by federal, state, or local resource agencies and organizations. Also included are habitats that are of relatively limited distribution or are of particular value to wildlife. Searches of the California Department of Fish and Game (DFG) California Natural Diversity Database (CNDDB) (2005) and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2005) were conducted to identify sensitive resources previously documented in the project vicinity. The searches included the Zamora, El Dorado Bend, Knight's Landing, Madison, Woodland, Gray's Bend, Winters, Merritt, and Davis U.S. Geological Survey 7.5-minute quadrangles. EDAW biologists reviewed these database searches and existing conditions in the project area to develop a list of special-status species with potential to occur in the project vicinity. An EDAW fisheries biologist was consulted to develop a list of special-status fish species with potential to occur in Cache Creek. Additional background information on special-status species was obtained by reviewing a recently completed biological field survey document covering the project area (DWR 2005b) and a technical document prepared for the Cache Creek Resource Management Plan planning process (Yolo County Community Development Agency 1995).

Special-Status Species

Special-status wildlife species include those that are state-listed and/or federally listed as threatened or endangered, those considered as candidates for listing as threatened or endangered, those identified by the

USFWS and/or DFG as species of concern, and animals identified by DFG as fully protected. Special-status plant species include those on CNPS Lists 1A (plants presumed extinct in California), 1B (plants rare, threatened, or endangered in California and elsewhere), or List 2 (plants rare, threatened, or endangered in California but more common elsewhere).

All raptors are protected under Section 3503.5 of the California Fish and Game Code, which prohibits take or destruction of raptors, including their nests and eggs. Raptors observed in the project area during the November 18 and 22, 2005 surveys included Cooper's hawk, American kestrel, and red-tailed hawk. These three raptors have the potential to nest in the project area. Additional raptors which could nest and forage in the project area include Swainson's hawk, northern harrier, white-tailed kite, great horned owl, and burrowing owl. Sharp-shinned hawk could also forage in the project area, but does not nest in Yolo County.

Special-Status Plant Species

Nine special-status plant species were identified in the CNDDB and CNPS searches as occurring in the project vicinity. Seven of these species occur in mesic areas (vernal pools) and/or in alkaline soils, one of the species occurs in freshwater marsh, and one occurs in valley and foothill grassland habitats. EDAW biologists determined that these nine species do not have the potential to occur on the project area due to the absence of suitable habitat. A tenth species, northern California black walnut, has two forms: 1) a rare form with pure northern California black walnut genotype; and 2) a common hybrid form resulting from hybridization with English walnut (*Juglans regia*). The rare form of California black walnut is not known to occur in the project vicinity and is not expected to occur within the project area. More detailed descriptions of these special-status plant species are provided below in Table 3.7-1.

Table 3.7-1
Special-Status Plants Known from the Vicinity of the Project Area

Species	Status[1]			Habitat and Blooming Period	Potential for Occurrence
	USFWS	DFG	CNPS		
Alkali milkvetch *Astragalus tener* var. *tener*	FSC	--	1B	Playas and vernal pools in valley and foothill grassland, alkali flats and flooded lands; from 0 to 60 meters in elevation. Blooms March – June	Not expected to occur in the project area, as no suitable alkaline habitat is present at Sites 1 or 2.
Heartscale *Atriplex cordulata*	FSC	--	1B	Alkaline flats and scalds in the Central Valley, sandy soils in Chenopod scrub, valley and foothill grassland, meadows; from 1 to 375 meters in elevation. Blooms April – October	Not expected to occur in the project area, as no suitable alkaline habitat is present at Sites 1 or 2.
Brittlescale *Atriplex depressa*	FSC	--	1B	Alkali scalds or alkaline clay and playas, in chenopod scrub, meadows, and valley and foothill grassland, rarely associated with riparian, marshes, or vernal pools; from 1 to 320 meters in elevation. Blooms May – October	Not expected to occur in the project area, as no suitable alkaline habitat is present at Sites 1 or 2.

Table 3.7-1
Special-Status Plants Known from the Vicinity of the Project Area

Species	Status[1]			Habitat and Blooming Period	Potential for Occurrence
	USFWS	DFG	CNPS		
San Joaquin spearscale *Atriplex joaquiniana*	FSC	--	1B	Alkali meadow, chenopod scrub, seeps in valley and foothill grassland, often in seasonal alkali wetlands or alkali sink scrub; from 1 to 835 meters in elevation. Blooms April – October	Not expected to occur in the project area, as no suitable alkaline habitat is present at Sites 1 or 2.
Palmate-bracted bird's beak *Cordylanthus palmatus*	E	E	1B	Chenopod scrub, alkaline areas in valley and foothill grassland, usually on Pescadero silty clay which is alkaline; from 5 to 155 meters in elevation. Blooms May – October	Not expected to occur in the project area, as no suitable alkaline habitat is present at Sites 1 or 2.
Round-leaved filaree *Erodium macrophyllum*	--	--	2	Cismontane woodland, valley and foothill grassland; from 15 to 1200 meters in elevation. Blooms March – May	Not expected to occur in the project area, as no suitable grassland habitat is present at Sites 1 or 2.
Rose-mallow *Hibiscus lasiocarpus*	--	--	2	Freshwater marshes and swamps, generally found on wetted river banks and low peat islands in sloughs, known from the Sacramento-San Joaquin Delta watershed; from 0 to 120 meters in elevation. Blooms June – September	Not expected to occur in the project area, as no suitable marsh habitat is present at Sites 1 or 2.
Northern California black walnut *Juglans californica* var. *hindsii*	FSC	--	1B	Riparian scrub, riparian woodland; from 0 to 440 meters in elevation. Blooms April – May	Northern California black walnut trees were encountered during the site visits; however, these are likely to be hybrids between *Juglans hindsii* and *Juglans regia*. The pure form of this variety is not known from the project vicinity and is not expected to occur within the project area.
Heckard's peppergrass *Lepidium latipes* var. *heckardii*	FSC	--	1B	Grasslands, alkaline soils, edges of vernal pools, in valley and foothill grassland; from 3 to 200 meters in elevation Blooms March – May	Not expected to occur in the project area, as no suitable alkaline habitat is present at Sites 1 or 2.

Table 3.7-1
Special-Status Plants Known from the Vicinity of the Project Area

Species	Status[1]			Habitat and Blooming Period	Potential for Occurrence
	USFWS	DFG	CNPS		
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*	FSC	--	1B	Vernal pools, swales, meadows, and seeps in cismontane woodland, lower montane coniferous forest, and valley and foothill grassland, on adobe or alkaline soils, from 5 to 1,740 meters in elevation. Blooms April – July	Not expected to occur in the project area, as no suitable vernal pool habitat is present at Sites 1 or 2.

Legal Status Definitions

U.S. Fish and Wildlife Service (USFWS)
- E Endangered
- FSC Federal Species of Concern

California Department of Fish and Game (DFG)
- E Endangered

California Native Plant Society (CNPS) Categories
- 1B Plant species considered rare, threatened, or endangered in California and elsewhere
- 2 Plant species considered rare, threatened, or endangered in California but more common elsewhere

Source: CNDDB 2005, CNPS 2005, USFWS Species List for Quad 514A & Yolo County (2005a, 2005b)

Special-status Wildlife Species

Species lists for all sensitive species found in the project area or that could be affected by the Proposed Action were obtained from USFWS (USFWS 2005a, 2005b). These species lists included lists Quad 514A (Woodland) and Yolo County (Appendix C). In addition, seven special-status wildlife species (including fish and invertebrates) were identified in the CNDDB searches as occurring within 5 miles of the project area. An additional 20 special-status species were considered for analysis due to their association with the habitat types surrounding the project area. Of the 27 species considered (Table 3.7-2), 22 (including 8 fish species) have potential to occur in or adjacent to the project area. These 22 species are described below. Suitable habitat for vernal pool special-status species such as vernal pool tadpole shrimp and vernal pool fairy shrimp does not exist within the project area; therefore, theses species are not discussed further.

Valley Elderberry Longhorn Beetle. Valley elderberry longhorn beetle is federally listed as threatened. This species requires blue elderberry shrubs for reproduction and survival. Five blue elderberry shrubs are present in the patch of Great Valley oak riparian forest immediately adjacent to the project area.

Special-status Fish Species. Historically, Cache Creek supported a diverse population of native fish species including several species that are currently designated as special-status (including Chinook salmon and steelhead). Currently, the fish population of Cache Creek is limited due to habitat degradation (e.g., temperature and flow) and downstream migration barriers. Chinook salmon have the potential to occur adjacent to the project areas only during months and/or years when water conditions (e.g., flow and temperature) are suitable and downstream passage is obtainable. The Cache Creek settling basin and several check dams and culverts throughout the Yolo Bypass prevent migration into the project area except under exceptional conditions during high Yolo Bypass flows. The fish species with the potential to occur in the project vicinity are described in more detail in Table 3.7-2.

Northwestern Pond Turtle. The northwestern pond turtle is a federal and state species of special concern. This species typically inhabits slow-moving streams, sloughs, ponds, and irrigation and drainage ditches with mud substrate, emergent aquatic vegetation, protected basking areas, and access to upland nest sites and winter refugia above the high-water line. This species is unlikely to occur near the project area due to the poor-quality habitat

present. The creek bottom consists of gravel and sand, emergent aquatic vegetation is absent, and 40-foot vertical banks preclude turtle access to upland habitats. However, this species is known to be present within the Cache Creek Nature Preserve, a 130-acre property 5 miles from the project area that is hydrologically connected to the portion of Cache Creek below the project area.

American Badger. The American badger is a California species of special concern. This species inhabits a variety of grassland, shrub-steppe, and wooded habitats with friable soils. One badger occurrence has been documented by CNDDB within 5 miles of the project area. Although no badger burrows were observed during the reconnaissance surveys, suitable habitat for badger is present within the project area along the existing levee. The riparian habitat along Cache Creek is also potentially suitable for this species.

Swainson's Hawk. Swainson's hawk is state-listed as threatened and is a federal species of concern. This species nests in large trees such as oak and cottonwood and forages in grasslands, low shrublands, and fields of short agricultural crops, such as alfalfa and tomato. Swainson's hawk is present in the Central Valley during its breeding season, defined by DFG as March 1 through September 15. Because EDAW's 2005 reconnaissance surveys took place in November, no Swainson's hawks were observed in the project area during these surveys. However, a reconnaissance survey conducted by DWR on June 24, 2005 identified Swainson's hawk foraging activity within 1/8-mile of Site 1 and a possible Swainson's hawk nest approximately 1/8-mile from Site 2. In the last 5 years, 79 Swainson's hawk nesting occurrences have been recorded by CNDDB within 5 miles of the project area. Any of these nesting pairs could forage in the project area. Trees bordering the agricultural fields and in the adjacent riparian habitat along Cache Creek provide suitable nest sites for this species.

White-tailed Kite. White-tailed kite is a federal species of concern and a fully protected species under California law. It nests in trees such as oak and cottonwood and forages in grasslands, low shrublands, and fields of short agricultural crops, such as alfalfa and tomato. This species inhabits the Central Valley throughout the year. No white-tailed kite nesting occurrences have been recorded by CNDDB within 5 miles of the project area, and the species is relatively uncommon in Yolo County. No white-tailed kites were observed during the November 2005 reconnaissance surveys. White-tailed kites could use the project area, however, as it provides suitable nesting and foraging habitat.

Western Burrowing Owl. Western burrowing owl is a California species of special concern and a federal species of concern. The CNDDB does not document any burrowing owls within 5 miles of the project area, and the species is believed to be declining in Yolo County (Yolo Audubon Society 2004). Owls were not observed during EDAW's November 2005 field surveys or the reconnaissance survey conducted by DWR on June 24, 2005. Burrowing owls have a high potential to occur in the project area, however, due to the suitable habitat available for this species. Burrowing owls typically nest and roost in burrows created by fossorial animals, such as ground squirrels, which are highly abundant in certain parts of the project area. Only one burrow observed at Site 2 was suitable for owls. By contrast, burrows large enough to support owls were abundant at Site 1. Burrowing owls commonly forage in agricultural habitats similar to those in the project area.

Northern Harrier. The northern harrier is a California species of special concern. Harriers nest on the ground and forage in a variety of open habitats including marshes, grasslands, shrublands, ruderal areas, and agricultural fields. Harriers nest most often in open areas where large trees are absent or uncommon. Although native marshes and grasslands provide higher-quality habitat for this species, harriers are common in Yolo County agricultural fields (Yolo Audubon Society 2004), and could nest and forage in or near the project area.

Cooper's Hawk and Sharp-shinned Hawk. Cooper's hawk and sharp-shinned hawk are both California species of special concern. Both inhabit a variety of wooded habitats, and are most commonly found in riparian woodlands. Both species are relatively uncommon in Yolo County (Yolo Audubon Society 2004). The riparian woodland adjacent to the project area provides suitable habitat for both species. A Cooper's hawk was observed at Site 1 during the November 22, 2005 EDAW survey. Cooper's hawks are present in the Central Valley throughout the year, and may nest in the riparian woodland adjacent to the project area. Sharp-shinned hawks

inhabit the valley only during winter and spring/fall migration periods; the species has not been documented in Yolo County during the summer nesting season (Yolo Audubon Society 2004). Sharp-shinned hawks could forage in the project area's adjacent riparian woodland during winter.

Bank Swallow. The bank swallow is state-listed as threatened. Bank swallows nest in colonies of burrows that are located in steep sand, earthen, or gravel banks and cliffs, near rivers or other bodies of water. Although this species is rare in Yolo County, bank swallow breeding colonies are known to occur in other sections of Cache Creek. The bank swallow nesting season is from March to July. Bank swallows and their burrows were not observed during EDAW's November 2005 field surveys or the reconnaissance survey conducted by DWR on June 24, 2005. However, the sheer, eroding bank on the opposite side of Cache Creek from the proposed Site 1 setback levee provides potential habitat for this species. An EDAW site visit on January 11, 2006 determined that erosion caused by winter floods had exposed fresh vertical banks, creating potential habitat for bank swallow in the project area.

Tricolored Blackbird. Tricolored blackbird is a California species of special concern and a federal species of concern. They nest in dense colonies that range from less than 25 individuals to more than 80,000 and often change colony locations from year to year. Tricolored blackbirds may nest in a variety of habitats, including riparian vegetation. A tricolored blackbird colony has been recorded by CNDDB within 5 miles of the project area, in a large stand of cattails along another section of Cache Creek. Tricolored blackbirds could also nest in the willow-dominated sections of Cache Creek adjacent to the project area. However, these areas provide lower-quality nesting habitat for this species, as they nest less frequently in willow-dominated vegetation than in emergent marsh vegetation or thickets of thorned plants such as blackberries. Tricolored blackbirds forage in grasslands, pastures, and agricultural fields, and could forage in the fields in and adjacent to the project area.

Loggerhead Shrike. The loggerhead shrike is a California species of special concern and a federal species of concern. Loggerhead shrikes hunt large insects and small vertebrates in grassland, shrub-steppe, open woodland/savannah, riparian, and agricultural habitats with scattered shrubs and trees. Suitable foraging habitat for loggerhead shrike is present both in and adjacent to the project area, and suitable nesting shrubs are present along Cache Creek.

California Horned Lark and Mountain Plover. The California horned lark and mountain plover are California species of special concern; mountain plover is also a federal species of concern. Both inhabit flat plains with short vegetation (often less than 4 inches high) or bare ground, and are found in both grasslands and fallow agricultural habitats. While the mountain plover is only present in the Central Valley during winter, horned larks are rare breeders in Yolo County and may be present throughout the year (Yolo Audubon Society 2004). When fallow, the agricultural fields in the project area may provide foraging habitat for California horned lark and mountain plover. These species are unlikely to make extensive use of the project area, however, as they typically avoid areas near abundant trees, which may support their avian predators.

Sensitive Habitats

Sensitive habitats include those identified as sensitive natural communities "rare and worthy of consideration" in the List of California Terrestrial Natural Communities Recognized by the CNDDB, as well as those protected under Section 404 of the Clean Water Act (CWA), Section 1602 of the California Fish and Game Code, and the State's Porter-Cologne Water Quality Control Act. The project area does not include any sensitive habitats. However, the patches of Great Valley oak riparian forest immediately outside the boundaries of the project area, as well as Cache Creek itself, are considered sensitive habitats.

Table 3.7-2
Special-Status Wildlife and Fish Species with Potential to Occur on or Adjacent to the Project Area

Species	Status [1]		Habitat	Potential for Occurrence
	USFWS	DFG		
Invertebrates				
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T	--	Elderberry shrubs, primarily in riparian woodlands	Occurs year-round; recorded within 5 miles of the project area, and elderberry shrubs are present in the project area.
Fish				
Central Valley steelhead *Oncorhyncus mykiss*	T	--	Requires cold, freshwater streams with suitable gravel for spawning	Unlikely to occur in Cache Creek but could occur infrequently during months when water conditions (e.g., flow and temperature) facilitate adult upstream passage, spawning, and juvenile rearing.
Sacramento winter-run Chinook salmon *Oncorhyncus tshawytscha*	E	E	Requires cold, freshwater streams with suitable gravel for spawning	Unlikely to occur in Cache Creek but could occur infrequently during months when water conditions (e.g., flow and temperature) facilitate adult upstream passage, spawning, and juvenile rearing.
Central Valley spring-run Chinook salmon *Oncorhyncus tshawytscha*	T	T	Requires cold, freshwater streams with suitable gravel for spawning	Unlikely to occur in Cache Creek but could occur infrequently during months when water conditions (e.g., flow and temperature) facilitate adult upstream passage, spawning, and juvenile rearing.
Central Valley fall-/late fall-run Chinook salmon *Oncorhyncus tshawytscha*	--	SSC	Requires cold, freshwater streams with suitable gravel for spawning	Could occur infrequently in Cache Creek during months when water conditions (e.g., flow and temperature) facilitate adult upstream passage, spawning, and juvenile rearing.
Sacramento splittail *Pogonichthys macrolepidotus*	DT	SSC	Spawning and juvenile rearing occurs from winter to early summer in shallow weedy areas inundated during seasonal flooding in the lower reaches and flood bypasses of the Sacramento River and tributaries	Historically occurred in Cache Creek, but unlikely to occur adjacent to the project area due to limited fish passage downstream.
Sacramento Perch *Archoplites interruptus*	SSC	SSC	Spawning occurs from spring to late summer, among aquatic plants or congregating in shallow waters in schools among or near inshore vegetation	Not expected to occur in Cache Creek; now depleted in its native range and restricted to a few locations, principally ponds and reservoirs where they are stocked.

Table 3.7-2
Special-Status Wildlife and Fish Species with Potential to Occur on or Adjacent to the Project Area

Species	Status [1]		Habitat	Potential for Occurrence
	USFWS	DFG		
Hardhead *Mylopharodon conocephalus*	--	SSC	Spawning occurs in pools and side pools of rivers and creeks; juveniles rear in pools of rivers and creeks, and shallow to deeper water of lakes and reservoirs	Could occur winter to summer in Cache Creek, adjacent to the project area.
Pacific lamprey *Lampetra tridentada*	SSC	--	Requires cool, freshwater streams with suitable gravel for spawning	Historically occurred in Cache Creek, but unlikely to occur adjacent to the project area due to limited fish passage.
Sacramento-San Joaquin roach *Lavinia symmetricus* sp.	--	SSC	Spawning occurs in pools and side pools of rivers and creeks; juveniles rear in pools of rivers and creeks	Could occur winter to summer in Cache Creek, adjacent to the project area.
Reptiles				
Giant garter snake *Thamnophis gigas*	T	T	Inhabits slow-moving streams, sloughs, ponds, marshes, flooded rice fields, and irrigation and drainage ditches with mud substrate, emergent aquatic vegetation, protected basking areas, and access to upland refugia above the high-water line	Not expected to occur; no known occurrences exist within 5 miles of the project area. Cache Creek does not provide suitable habitat. The creek bottom consists of gravel and sand, emergent aquatic vegetation is absent, and 40-foot vertical banks preclude snake access to upland habitats. No irrigation ditches or other waterways are present in the project area.
Northwestern pond turtle *Actinemys marmorata marmorata*	SSC	SSC	Inhabits slow-moving streams, sloughs, ponds, and irrigation and drainage ditches with mud substrate, emergent aquatic vegetation, protected basking areas and access to upland nest sites and winter refugia above the high-water line	Unlikely to occur; Cache Creek provides marginally suitable habitat and no irrigation ditches or other waterways are present in the project area.
Mammals				
American badger *Taxidea taxus*	--	SSC	Inhabits grassland, shrub, and woodland habitats with friable soils	Could occur year-round; recorded within 5 miles of the project area. Suitable habitat exists adjacent to the project area, although no badger burrows were observed during reconnaissance surveys.

Table 3.7-2
Special-Status Wildlife and Fish Species with Potential to Occur on or Adjacent to the Project Area

Species	Status [1]		Habitat	Potential for Occurrence
	USFWS	DFG		
Birds				
Swainson's hawk *Buteo swainsoni*	SSC	T	Nests in riparian woodlands and isolated trees; forages in grasslands, shrublands, and agricultural fields	Could occur in late spring and summer; known to occur in the project vicinity. Suitable nesting and foraging habitat is present both in and adjacent to the project area.
White-tailed kite *Elanus leucurus*	SSC	FP	Nests in woodlands and isolated trees; forages in grasslands, shrublands, and agricultural fields	Could occur year-round; suitable nesting and foraging habitat is present both in and adjacent to the project area.
Burrowing owl *Athene cunicularia*	SSC	SSC	Nests and forages in grasslands, shrublands, deserts, and agricultural fields, especially where ground squirrel burrows are present	Could occur year-round; suitable nesting and foraging habitat is present both in and adjacent to the project area.
Northern harrier *Circus cyanus*	--	SSC	Nests and forages in a variety of open habitats including marshes, grasslands, shrublands, and agricultural fields	Could occur year-round; suitable nesting and foraging habitat is present both in and adjacent to the project area.
Cooper's hawk *Accipter cooperii*	--	SSC	Nests and forages in and near a variety of wooded habitats including riparian woodlands, oak stands, and coniferous forests, frequently near water	Could occur year-round; suitable nesting and foraging habitat is present adjacent to the project area, and the species was observed adjacent to the project area along Cache Creek during the November 22, 2005 survey.
Sharp-shinned hawk *Accipiter striatus*	--	SSC	Forages primarily in riparian woodlands. Also forages in other wooded and residential habitats, as well as open habitats adjacent to woodlands	Could occur in winter; suitable foraging habitat is present both in and adjacent to the project area.
Bank swallow *Riparia riparia*	--	T	Nests in vertical banks and cliffs with fine textured or sandy soils near streams, rivers, lakes, and ocean	Could occur in late spring and summer; potential nesting and foraging habitat is present adjacent to the project area along Cache Creek, although no swallow burrows were observed during reconnaissance surveys.

Table 3.7-2
Special-Status Wildlife and Fish Species with Potential to Occur on or Adjacent to the Project Area

Species	Status [1]		Habitat	Potential for Occurrence
	USFWS	DFG		
Purple martin *Progne subis*	--	SSC	Historically nested in riparian tree cavities. Forages in a variety of wooded habitats including riparian woodlands, coniferous forests, and occasionally residential areas	Not expected to occur; although suitable habitat exists adjacent to the project area, the Yolo County purple martin population is now restricted to nesting under a few key bridges away from the project area.
Tricolored blackbird *Agelaius tricolor*	SSC	SSC	Nests colonially in cattails, tules, willows, blackberries, nettles, mustards, thistles, and other dense vegetation; Forages in grasslands and agricultural fields	Could occur year-round; recorded within 5 miles of the project area. Low-quality nesting habitat is present adjacent to the project area; low-quality foraging habitat is present both in and adjacent to the project area.
White-faced ibis *Plegadis chihi*	--	SSC	Nests in dense cattail and tule marshes; forages in marshes, shallow lakes, and flooded or muddy croplands and pastures	Not expected to occur. Recorded within 5 miles of the project area, but suitable habitat is not present in or adjacent to the project area.
Loggerhead shrike *Lanius ludovicianus*	SSC	SSC	Nests and forages in grasslands, agricultural fields, open woodlands, and shrublands	Could occur year-round; suitable nesting and foraging habitat is present both in and adjacent to the project area.
California horned lark *Eremophila alpestris actia*	--	SSC	Nests and forages in a variety of open habitats including grasslands and fallow agricultural fields, usually where trees are absent	Could occur year-round; low-quality nesting and foraging habitat is present both in and adjacent to the project area.
Mountain plover *Charadrius montanus*	SSC	SSC	Forages in short grasslands, plowed agricultural fields, and occasionally low, open sagebrush-steppe, usually where trees are absent	Could occur in winter; recorded within 5 miles of the project area. Low-quality foraging habitat is present both in and adjacent to the project area.
Western snowy plover *Charadrius alexandrinus nivosus*	T	SSC	Nests and forages on sandy and gravelly beaches along the coast and the shores of inland alkali lakes	Not expected to occur; recorded within 5 miles of the project area, but suitable habitat is not present in or adjacent to the project area.

[1] Legal Status Definitions:

U.S. Fish and Wildlife Service (USFWS)

E = Endangered (legally protected)
T = Threatened (legally protected)
DT = Recently delisted from threatened status
SSC = Species of Special Concern (no formal protection)

California Department of Fish and Game (DFG)

E = Endangered (legally protected)
T = Threatened (legally protected)
FP = Fully Protected (legally protected, no take allowed)
SSC = Species of Special Concern (no formal protection)

Source: EDAW 2005

3.7.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant biological resources impact if it would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by DFG or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by DFG or USFWS;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.7.3 ENVIRONMENTAL CONSEQUENCES

SPECIAL-STATUS SPECIES

Special-status Plants. The project area does not support suitable habitat for special-status plants; therefore, the Proposed Action would have **no effect** on special-status plants.

Valley elderberry longhorn beetle. Five elderberry shrubs are present immediately adjacent to the project area on the waterside of the existing levee. One elderberry shrub is located adjacent to Site 2, and four elderberry shrubs are located adjacent to Site 1. All five shrubs contain stems measuring greater than 1.0 inch or greater in diameter when measured at ground level and thus have the potential to support valley elderberry longhorn beetle (VELB). Potential damage and mortality to these shrubs from construction activities associated with the Proposed Action is considered to be a potentially significant impact on VELB.

According to the USFWS guidelines, *USFWS Conservation Guidelines for Valley Elderberry Longhorn Beetle* (USFWS 1999), a 100-foot buffer around elderberry shrubs should be established by the project applicant wherever feasible to completely avoid potential impacts to VELB. Where a 100-foot buffer is not feasible, a minimum buffer of 20 feet shall be maintained around each elderberry shrub. Appropriate buffer widths for the Proposed Action were discussed on December 6, 2005, at a meeting with DWR and Jennifer Hobbs of USFWS. At this meeting, Ms. Hobbs stated that a formal Biological Opinion or ESA Section 7 permit would not be required for the Proposed Action provided that all elderberry shrubs at the levee setback sites were protected by buffers of at least 20 feet. Implementation of Mitigation Measure 3.7-1 would reduce the potentially significant impact to VELB to a **less-than-significant** level.

Mitigation Measure 3.7-1: Maintain a Buffer Around Elderberry Shrubs.

The following measures would reduce adverse impacts to VELB to a less-than-significant level:

- The Reclamation Board and USACE shall establish and maintain a minimum buffer of 20 feet around each elderberry shrub.
- Buffer areas shall be clearly marked in the field with brightly colored, temporary construction fencing and flagging. No project activity shall occur within the buffer areas.
- Following USFWS guidelines (USFWS 1999), construction crews shall be informed about the status of the beetle and the need to protect its elderberry host plant. If requested by USFWS, a qualified biologist shall monitor construction activities to ensure that the buffers remain protected throughout construction.
- If the establishment of a 20-foot buffer is not feasible, then USFWS shall be consulted. It is anticipated that shrubs that cannot be adequately protected will need to be transplanted to a protected onsite area before construction begins, in accordance with USFWS guidelines (USFWS 1999).

Special-status Fish. Adverse impacts to special-status fish are not expected to result from the construction, operation, or maintenance of the setback levees because the area of potential effect is restricted to the landside of the existing levee. Potential for fish stranding during high flows would be minimized by notching the existing levee to prevent ponding of the levee setback area and to allow drainage back into Cache Creek. In addition, beneficial effects could result from fish being contained within the new setback area during a flood. Under the current situation, fish would be subject to higher mortality during a levee break that might occur at a lesser magnitude flood because many fish would be expected to be stranded in the nearby agricultural fields. This potential impact is considered to be **less than significant**.

Adverse effects to water quality could result from notching the existing levee and allowing water to travel either direction through the notch, resulting in potential degradation of fish habitat. This impact, which would occur only during extremely high flow events, is considered to be **less-than-significant** impact on fish.

Nesting Raptors and Special-status Birds. Swainson's hawk, white-tailed kite, burrowing owl, northern harrier, Cooper's hawk, bank swallow, tricolored blackbird, loggerhead shrike, and California horned lark could nest within or adjacent to the project area and could be disturbed by construction activities. In addition to these special-status species, the nests of all raptor species are protected under Section 3503.5 of the California Fish and Game Code. Nest disturbance has the potential to cause nest abandonment or the loss of eggs or chicks due to reduced parental care. Substantial effects to loggerhead shrike and horned lark are unlikely to occur, because these species are less susceptible to disturbance than raptors and colonially nesting species, including swallows and tricolored blackbird. Loss of active raptors nests or bank swallow or tricolored blackbird colonies is potentially significant. Implementation of Mitigation Measures 3.7-2 and 3.7-3 would reduce this impact to a **less-than-significant** level.

Mitigation Measure 3.7-2: Conduct Pre-Construction Surveys for Raptor Nests and Avoid Any Identified Nests during Construction.

The following measures would reduce potentially significant adverse impacts to nesting raptors and special-status birds to a less-than-significant level:

- Nest disturbance shall be entirely avoided by limiting construction to the non-breeding season (September 16 to February 28) to the extent feasible. If project construction activities occur between March 1 and September 15, focused surveys for raptors, bank swallow, and tricolored blackbird shall be conducted by a qualified biologist. The surveys shall be conducted no more than 14 days prior to the beginning of construction.

Surveys for Swainson's hawk nests shall include all areas of suitable nesting habitat within 0.25-mile of the project area. To the extent feasible, guidelines provided in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley* (Technical Advisory Committee 2000) shall be followed. Surveys for other raptors and special-status species shall include suitable nesting habitat within 500 feet of the project area.

- If no active nests are found, the biologist shall document survey methods and findings in a letter report to DFG, and no further mitigation shall be required.

- If active nests are found, impacts shall be avoided by the establishment of appropriate buffers and/or nest monitoring by a qualified biologist. The size of the buffer shall be determined by a qualified biologist in consultation with DFG. No construction activity shall commence within a buffer area until a qualified biologist confirms that the nest is no longer active or consultations with DFG specifically allow certain construction activities to continue.

Mitigation Measure 3.7-3: Conduct Pre-Construction Surveys for Burrowing Owls and Avoid Any Identified Burrows.

The following measures would reduce potentially significant adverse impacts to burrowing owls to a less-than-significant level:

- Prior to any ground-disturbing project-related construction activity, a focused survey for burrowing owls shall be conducted by a qualified biologist in accordance with DFG protocol (DFG 1995) to identify active burrows in and within 250 feet of each project site. The surveys shall be conducted no more than 30 days prior to the beginning of construction.

- If no occupied burrows are found in the survey area, the biologist shall document survey methods and findings in a letter report to DFG, and no further mitigation is required.

- If an occupied burrow is found, a buffer shall be established –165 feet during the nonbreeding season (September 1 through January 31) or 250 feet during the breeding season (February 1 through August 31) – for all project-related construction activities. The size of the buffer area may be adjusted if a qualified biologist and DFG determine project-related construction activities would not be likely to have adverse effects. No project-related construction activity shall commence within the buffer area until a qualified biologist confirms that the burrow is no longer occupied, or consultations with DFG specifically allow certain construction activities to continue.

- If avoidance of occupied burrows is infeasible for project-related construction activities, on-site passive relocation techniques approved by DFG shall be used to encourage owls to move to alternative burrows outside of the project area. However, no occupied burrows shall be disturbed by project-related construction activities during the nesting season unless a qualified biologist verifies through noninvasive methods that the burrow is no longer occupied.

Habitat for Special-status Birds. Construction of the setback levees on agricultural and ruderal land would result in the temporary loss of approximately 4 acres of potential foraging habitat for Swainson's hawk, white-tailed kite, burrowing owl, northern harrier, tricolored blackbird, horned lark, and mountain plover, as well as potential nesting habitat for burrowing owl, northern harrier, and horned lark. The setback area would eventually be restored after construction with native grassland which would improve habitat for the species listed above. Given that a small area of habitat may be converted from agricultural to grassland, that both of these habitat types support special-status species, and that agricultural habitat is much more common than grassland in Yolo County, this impact would be less than significant. Permanent habitat conversion along the levee footprint would also be **less than significant**, because the species associated with the agricultural habitat which would be lost are also associated with the grassland and ruderal habitats which would characterize the levee setback areas.

Northwestern Pond Turtle. Construction of setback levees is not expected to adversely affect northwestern pond turtle. This species has been documented in the Cache Creek Nature Preserve 5 miles from the project area. However, the section of Cache Creek below the proposed setback levees provides poor-quality habitat for this species, and the turtle does not have potential to occur within the project area due to the 40-foot vertical banks between the project sites and the creek. Therefore, this impact would be **less than significant**.

American Badger. American badger has been documented within 5 miles of the project area and suitable foraging habitat exists in the adjacent riparian woodland. Although badgers could forage in this adjacent woodland, they are unlikely to den adjacent to the project area because of the narrow width of the riparian habitat. Badgers are typically an area-dependent species with home ranges between 300–1,500 acres. No evidence of badger activity was observed during the reconnaissance surveys. Construction and operation of setback levees is not expected to adversely affect American badger; therefore, this impact would be **less than significant**.

RIPARIAN AND OTHER NATURAL COMMUNITIES

The project area does not include any riparian habitat or other sensitive natural communities. However, Cache Creek and the Great Valley oak riparian forest patches along its banks are located immediately adjacent to the project area. Both the creek and the forest are considered sensitive habitat by DFG. Patches of Great Valley oak riparian forest are present within 20 feet of construction activities, and the bank of Cache Creek is located within 100 feet of construction activities. There is potential for impacts to the forest vegetation or creek bank to occur where construction activities come within 100 feet of these sensitive resources. This impact would be considered potentially significant. Implementation of Mitigation Measure 3.7-4 would reduce this impact to a **less-than-significant** level.

Mitigation Measure 3.7-4: Erect Brightly Colored Fencing Around Sensitive Riparian Habitat.

The following measure would reduce potentially significant adverse impacts to sensitive natural communities to a less-than-significant level:

- The project proponent shall erect brightly colored protective fencing to protect the patches of Great Valley oak riparian forest and the bank of Cache Creek from construction activities. No construction activities shall be allowed in these areas.

WETLANDS

The project area does not support federally protected wetlands as defined by Section 404 of the Clean Water Act. However, Cache Creek, which does qualify for protection as a water of the U.S. under Section 404 of the Clean Water Act, is located immediately adjacent to the project area. Any fill of waters of the United States is subject to USACE jurisdiction under Section 404 of the Clean Water Act. In addition, all diversions, obstructions, or changes in the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by DFG under Section 1602 of the California Fish and Game Code. Considering the proximity of construction of the Proposed Action to Cache Creek, there is the potential for construction-related impacts to the creek bank although construction activities would not be within the ordinary high water mark. This would be considered a potentially significant impact. Implementation of Mitigation Measure 3.7-4 would reduce this impact to a **less-than-significant** level.

WILDLIFE CORRIDORS

A wildlife corridor is generally a topographical or landscape feature, or movement area, that connects two open space habitat parcels that would otherwise be entirely fragmented or isolated from one another. Although a variety of wildlife species may use the project area, it does not function as a known or major migratory corridor. Project construction and operations would not substantially interfere with the movement of any native resident or

migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites. Therefore, the Proposed Action would have a **less than significant** effect on wildlife migration or nursery sites.

LOCAL POLICIES

Federal projects are not subject to local tree ordinances. Furthermore, Yolo County does not currently have a tree ordinance or other regulations that protect trees within the County. In November 2005, the County adopted the Greenprint Initiative, which is a regional initiative that supports the planting of trees on public lands to improve and sustain the quality of life in the region. It is likely that tree policies will be developed during the Yolo County General Plan Update process that is currently underway. The county is currently applying for a grant from the DFG Wildlife Conservation Board to develop an oak woodland management plan. Two large valley oaks are present at Site 2 that could be affected by implementation of the Proposed Action. Brightly colored protective fencing will be erected around the driplines of the valley oaks to protect those two trees during construction activities related to the Proposed Action. Because no policies to protect oaks are in place, and an exclusion measure is being taken to protect the oaks, this impact would be **less than significant**.

HABITAT CONSERVATION PLANS

The project area is within the boundaries of the proposed Yolo County HCP/NCCP, which is currently under development, as well as the CCRMP. The purpose of the HCP/NCCP will be to promote biological conservation in conjunction with economic and urban development in the plan area. The HCP/NCCP will describe the measures that local agencies will perform to conserve biological resources, obtain permits for urban growth and public infrastructure projects, and continue to maintain the rich agricultural heritage and productivity of the county. The purpose of the CCRMP is to manage the resources of Cache Creek in a more coordinated fashion to achieve numerous goals, such as flood control, channel improvement and protection, erosion control, groundwater recharge, in-stream mining restrictions, wildlife enhancement, and riparian habitat protection and restoration. The CCRMP also intends to protect sensitive creek biological resources such as VELB, raptors, and other special-status species (Yolo County 2002b).

Implementation of the Proposed Action would not in any way conflict with the provisions or otherwise affect implementation of the Yolo County HCP/NCCP. As the HCP/NCCP has not yet been adopted, there is no impact related to the proposed HCP/NCCP. Potential impacts to the patches of Great Valley oak riparian, elderberry shrubs, creek channel, and other sensitive resources caused by implementation of the Proposed Action would likely be in conflict with the goals of the CCRMP, when adopted, and would be considered potentially significant. Implementation of Mitigation Measures 3.7-1 through 3.7-4 would reduce this impact to a **less-than-significant** level.

3.8 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

This section discusses cultural resources in the project vicinity, potential effects resulting from the Proposed Action, and mitigation measures needed to reduce any potentially significant effects to cultural resources. The project area and its vicinity are known to contain numerous traces of past human activity ranging from early Native American sites and human interments to the remains of early agricultural and ranching activities. Such materials can be found at many locations on the landscape and, along with prehistoric and historic human remains and associated grave goods, are protected under various federal, state, and local statutes including Section 106 of the National Historic Preservation Act (NHPA) and CEQA.

3.8.1 AFFECTED ENVIRONMENT

HISTORY OF CACHE CREEK AND THE CENTRAL VALLEY

The Cache Creek area and the Central Valley region of California in general were some of the most densely populated areas in North America during prehistoric times. Summaries and overviews of the prehistory of the vicinity can be found in *California Archaeology* (Moratto 1984:167–216) and *Summary of the Prehistory of the Lower Sacramento Valley and Adjacent Mountains* (Johnson 1982). A more detailed discussion of the broad cultural patterns proposed for Central California can be found in *A Proposed Integrative Taxonomy for Central California Archaeology* (Bennyhoff and Fredrickson 1969).

The general project area is within the ethnographic territory of the Patwin, a series of linguistically and culturally related groups who occupied a portion of the lower Sacramento Valley west of the Sacramento River and north of Suisun Bay. Major sources of information on these groups include the works of Bennyhoff (1977), Johnson (1978), Kroeber (1925), McKern (1922), Powers (1877), and Work (1945). Although these groups had no common name, they spoke dialects of a single historically related language.

In general, Patwin lifeways remained stable for centuries until the large-scale incursions of European populations during the early decades of the 19th century. Trappers from the Hudson's Bay Company, Russian traders, and Spanish missionaries were the first non-Native peoples to venture into Patwin territory but probably had little impact on their culture. Several epidemics broke out in the Central Valley during the early decades of the 19th century that severely reduced population levels among many Native American groups and put great stress on their cultural systems. However, it was not until the Gold Rush period starting in 1848-1849 that intensive pressure from miners, farmers, ranchers, and other entrepreneurs and settlers significantly and permanently disrupted Patwin lifeways.

Euro-American settlement in the vicinity of the project area began in earnest with the granting of Rancho Rio Jesus Maria to John M. Harbin (and others) in 1846. By 1849, the town of Cochran's Crossing (named for the founder, Thomas Cochran) was established; by 1857, it was already known as Cacheville (now called Yolo) and was shown as such on an 1857 U.S. General Land Office plat map of the area. Due at least in part to its early establishment, Cacheville/Yolo served as the Yolo County seat during 1857–1860 and by 1870 boasted three stores, two saloons, a hotel, the county courthouse, and a number of homes and other businesses. Today, many of these buildings remain in use, and the town contains a higher concentration of buildings from the earliest period of American settlement than anywhere else in the county (Les 1986).

Although the Gold Rush initially sent thousands of people into the region in search of their fortunes, it was agriculture that quickly proved to be the most profitable enterprise. The development of agriculture within the Sacramento Valley and Yolo County specifically was dependent upon irrigation systems. The first was constructed in 1864 when James Moore completed a dam across Cache Creek and 9 miles of canals that supplied water to county farmers. A series of droughts in the 1860s necessitated the need for increasingly larger projects; however, it was not until the 20th century and implementation of the federal Central Valley Project that agriculture, aided by construction of a railroad network, vastly increased its contribution to the economic and subsequent political development of the Sacramento Valley, which has lasted to the present day.

CULTURAL RESOURCES IN THE AREA OF POTENTIAL EFFECT

A record search conducted through the Northwest Information Center (NWIC) record search focused on the immediate Area of Potential Effect (APE) (Exhibit 2-1) and an area within approximately 1/2 mile beyond the APE. For the purposes of this project, the APE is defined as the project area. Although no cultural resources have been documented directly within the APE, two prehistoric resources were identified nearby. A scatter of lithic artifacts (no NWIC site record available) has been documented to the southwest of the Site 1 APE. Site CA-Yol-71, a deposit of lithic artifacts and faunal remains, is located approximately ¼ mile to the northwest of the Site 1 APE. Although neither of these sites would be impacted by the Proposed Action, their presence illustrates the highly sensitive nature of the surrounding area to contain Native American cultural and human remains and traces of early historic-era activities.

3.8.2 SIGNIFICANCE THRESHOLDS

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects.

Any undiscovered prehistoric and historic cultural resources in the APE may be eligible for inclusion on the California Register of Historic Resources (CRHR) and the National Register of Historic Places (NRHP). The significance of individual sites, features, or artifacts as per CRHR/NRHP guidelines is an important consideration for managing cultural resources. Only resources that are determined eligible for listing on these registers must have potentially adverse impacts to them mitigated to a less-than-significant level. Each register utilizes similar criteria, and sites eligible for CRHR listing are also potentially eligible for inclusion on the NRHP.

Determining the CRHR eligibility of historic and prehistoric sites located within the study area is guided by the specific legal context of the site's significance as outlined in sections 15064.5(b), 21083.2, and 21084.1 of the Public Resources Code (PRC). NRHP eligibility is based on similar criteria outlined in Section 106 of the NHPA (16 U.S.C. 470). In both CRHR and NRHP, cultural resources are defined as buildings, sites, structures, or objects that may have historical, architectural, archaeological, cultural, or scientific importance. A cultural resource may be eligible for listing on the CRHR and/or NRHP if it:

1) is associated with events that have made a significant contribution to the broad patterns of California's/national history and cultural heritage;

2) is associated with the lives of persons important in our past;

3) embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of an important creative individual or possesses high artistic values; or

4) has yielded, or may be likely to yield, information important in prehistory or history.

In California, if a prehistoric or historic resource does not necessarily meet any of the four CRHR/NRHP criteria, but does meet the definition of a "unique" site as outlined in the PRC (Section 21083.2), it may still be treated as a significant resource. This is the case if it is "… an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) It contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;

2) It has a special and particular quality such as being the oldest of its type or the best available example of its type;

3) It is directly associated with a scientifically recognized important prehistoric or historic event."

3.8.3 ENVIRONMENTAL CONSEQUENCES

Although two potentially significant cultural resources have been documented outside of the APE for proposed setback levees at Site 1 and Site 2, no documented cultural resources would be impacted by ground-disturbing activities associated with the Proposed Action. As a result, there would be a **less than significant** on these sites and on documented cultural sites in the vicinity.

Despite the fact that archival and field research did not reveal the presence of any prehistoric or historic-era cultural resources within the APE, it is important to note that undiscovered subsurface remains may be present in the area and could be impacted by the Proposed Action. In light of the potential to uncover unknown or undocumented subsurface cultural remains, this impact would be potentially significant. Implementation of Mitigation Measure 3.8-1 would reduce this potential impact to a **less-than-significant** level.

Mitigation Measure 3.8-1: Immediately Halt Construction Activities if any Cultural Materials Are Discovered.

If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, flaked stone, bottle glass, ceramics, structure/building remains, etc.) is made during project-related construction activities, ground disturbances in the area of the find will be halted immediately and a qualified professional archaeologist will be notified regarding the discovery. The archaeologist shall determine whether the resource is potentially significant as per the CRHR/NRHP and develop appropriate mitigation. Implementation of this mitigation measure would reduce this impact to a less-than-significant level.

Although no evidence of human remains was found in documentary research and a field reconnaissance, future ground-disturbing activities in the APE could adversely affect presently unknown prehistoric burials. California law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction. In light of the potential to uncover unknown or undocumented Native American burials, this impact is considered potentially significant. Implementation of Mitigation Measure 3.8-2 would reduce this impact to a **less-than-significant** level.

Mitigation Measure 3.8-2: Immediately Halt Construction Activities if Any Human Remains Are Discovered.

The procedures for the treatment of discovered human remains are contained in California Health and Safety Code Section 7050.5 and Section 7052 and California Public Resources Code Section 5097.

In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, all such activities within 75 feet of the find shall be halted immediately and the Reclamation Board or the Reclamation Board's designated representative shall be notified. The Agency shall immediately notify the county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The Reclamation Board's responsibilities for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The Reclamation Board or its appointed representative and the professional archaeologist will consult with a Most Likely Descendent (MLD) determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity.

Assuming an agreement can be reached between the MLD and the Reclamation Board and USACE or their representative with the assistance of the archaeologist, these steps will minimize or eliminate adverse impacts to the uncovered human remains. Therefore, Mitigation Measure 3.8-2 would reduce the potential impact to a less-than-significant level.

3.9 GEOLOGY AND SOILS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Geology and Soils. Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

This section provides a description of the geologic conditions of the project area, thresholds of significance to identify potentially significant effects, and mitigation if needed to reduce significant effects to geologic resources.

3.9.1 AFFECTED ENVIRONMENT

The project area is in the Great Valley geomorphic province. The lower Cache Creek basin consists of continental deposits of silt-clay, sand, and gravel. The overlying alluvium deposits are similar and generally not as coarse as the continental deposits.

Lower Cache Creek flows through alluvial fan and floodplain deposits ranging from clay and silt to coarse sand and gravel (Wahler Associates 1982 cited in USACE 2002). Borehole data show clay deposits are common at depths in excess of 20 to 25 feet from the ground surface, whereas more recently deposited silt and sand characterize sediments above the 20- to 25-foot depth (USACE 1958; Wahler Associates 1982 cited in USACE 2002).

Soils in the project area are Yolo silt loam. This soil type is found on alluvial fans and is a well-drained soil. Slopes are typically 0 to 2 percent. Yolo soils are used for orchards, row crops, forage crops, truck crops, irrigated pasture, and wildlife habitat. Surface runoff for Yolo soils is very slow, and the erosion hazard is very low (Soil Conservation Service 1972).

Several faults are located in the vicinity of the project area. The Dunnigan Hills Fault is located approximately 6 miles north of the project area. This fault is considered active due to recent activity during the Holocene epoch (the last 10,000 years) and is capable of generating a magnitude 6.5 earthquake (DWR 2006; Toppozada et al. 2000 cited in USACE 2002). Other faults in the region include the Zamora Fault and the Capay Fault, both of which are considered to be inactive (Jennings 1994 cited in USACE 2002).

The potential exists for liquefaction to occur in the project area. The presence of groundwater and the potential for strong ground shaking due to faulting and seismicity in the area make the soils in the project area potentially susceptible to liquefaction (DWR 2006).

3.9.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant impact on geology and soils if it would cause:

- expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

  i) rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault,

  ii) strong seismic ground shaking,

  iii) sesmic-related ground failure, including liquefaction,

  iv) landslides,

- result in substantial soil erosion or loss of topsoil;

- be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

- be located on expansive soil as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property; or

- have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

3.9.3 ENVIRONMENTAL CONSEQUENCES

The Proposed Action would be constructed on Yolo soils that have a low potential for erosion. Construction of the setback levees would occur before the rainy season, further reducing the risk of water erosion. Most of the construction activities would be on the landside of the existing levee; however, a 10-foot wide notch would be cut into the existing levee at Site 1 and two 10-foot notches would be cut into the existing levee at Site 2. Disturbance

of topsoil for levee construction and creating the notches in the existing levees could increase the potential for wind and water erosion in the project area; therefore, this impact is potentially significant. Implementation of Mitigation Measure 3.6-1 in Section 3.6 "Hydrology and Water Quality" would reduce this impact to a **less-than-significant** level.

Because the Proposed Action is located near the Dunnigan Hills Fault that is considered active, the potential exists for ground shaking and liquefaction in the project area. However, no structures for human occupancy, as defined in Section 3601 of the CCR, would be placed across any fault or within 50 feet of any fault. Construction of the setback levees would not increase risk to people or property associated with seismic activity or landslides; rather, it would further protect the integrity of the Cache Creek levee system and would increase the protection of people and property in the project area from flooding. Because the Proposed Action would add stability to the Cache Creek levee system and no structures would be constructed in the fault zone, this impact would be **less than significant**.

The Proposed Action would not be constructed on expansive or unstable soils. The project area is in an area with soils exhibiting low shrink-swell potential. The setback levees would increase the stability of the existing levee system, resulting in a flood control benefit. Because the soils in the project area are stable and have a low shrink-swell potential, the Proposed Action would have **no effect** on expansive or unstable soils.

3.10 ENERGY AND MINERAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Mineral Resources. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☒	☐

This section provides an overview of existing energy and mineral resources in the project area, including existing power plants, current mineral extraction activities, and mineral resource zone designations. Impacts are evaluated in relation to any potential loss of availability of a locally important mineral resource and wasteful use of non-renewable resources associated with the Proposed Action. Mitigation measures are proposed, if necessary, to reduce impacts.

3.10.1 AFFECTED ENVIRONMENT

ENERGY RESOURCES

In recent years, natural gas has become more important to Yolo County's economy. According to the California Department of Conservation, there are approximately 25 natural gas fields located within Yolo County. Natural gas has been produced from the Dunnigan Hills area northwest of Woodland, from the Fairfield Knolls gas field northeast of Winters, and from the Rumsey Hills area east of Rumsey. Natural gas wells have also been established in Clarksburg, Yolo, and Davis. A large gas storage area (maximum capacity of 3.25 billion cubic feet) has been identified at the dry Pleasant Creek gas field, located approximately 2.5 miles northwest of Winters.

The 1982 Energy Plan for Yolo County listed the county's estimated natural gas reserves at 117,402 million cubic feet (Mcf). Further research would be needed to determine the extent of present day county-wide reserves, as the data listed are from 1978. However, based on the 2002 annual report of the State Oil & Gas Supervisor, nearly all of these fields have been abandoned and there are presently no identified reserves in the county.

Three power plants are located within Yolo County – one oil/gas facility and two waste-to-energy (WTE) facilities. All of the plants are currently operational and within the PG&E service area. The oil/gas facility is a three-megawatt (MW) University of California at Davis plant. Primary fuel for this facility is natural gas. The 28-MW Woodland Biomass Power Ltd uses agricultural wastes and woodwastes as primary fuel. The 2.85-MW M.M.-Yolo Power LLC Facility uses landfill gas as primary fuel.

MINERAL RESOURCES

The California Surface Mining and Reclamation Act (SMARA) was enacted by the State Legislature to regulate activities related to mineral resource extraction. The Act requires the prevention of adverse environmental effects caused by mining, the reclamation of mined lands for alternative land uses, and the elimination of public health and safety hazards from the effects of mining activities. Most of the mining operations along Cache Creek are subject to all of SMARA's requirements.

As discussed in Section 3.1, "Land Use and Agricultural Resources", the OCMP and the CCRMP comprise the Cache Creek Area Plan. The OCMP accommodates gravel mining on the creek terraces (but not in-channel) while emphasizing habitat restoration, open space, and reclamation of mined lands to agricultural use. The CCRMP area extends from the Capay Dam to I-5 and eliminated commercial in-channel aggregate mining.

The California Division of Mines and Geology classifies the regional significance of mineral resources in accordance with the SMARA. Mineral Resource Zones (MRZs) have been designated to indicate the significance of mineral deposits. Aggregate resources along lower Cache Creek are mapped as three MRZs: MRZ-1, an area where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence; MRZ-2, an area where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists; and MRZ-3, an area where the significance of mineral deposits cannot be evaluated from existing data. MRZ-1 comprises 1,458 acres; MRZ-2 comprises 18,452 acres; and MRZ-3 comprises 8,220 acres. Only 2,887 acres of the MRZ-2 area are proposed for off-channel mining over the next 50 years, or about 12% of the OCMP planning area (Yolo County 1996, 2002b).

The primary mineral resource presently being extracted in the county is aggregate. Most of the aggregate occurs along Cache Creek, beginning at the upstream end of Capay Valley (at County Road 85) and extending downstream to approximately I-5. Throughout this area, the aggregate consists of large concentrations of a high-grade gravel, sand, and clay and is roughly 100–125 feet thick (Yolo County 1996, 2002a). Six aggregate mines are currently operational in the county; all are located on the stream terraces of Cache Creek, and most are commercial operations (Yolo County 2005):

- Madison Plant: Syar Industries, Inc.;
- Esparto-Reiff Property and Mast Property: Teichert Aggregates;
- Solano Concrete Off-Channel: Rinker Materials, Inc.;
- Capay Facility: Granite Construction Company;
- Woodland Plant: Teichert Aggregates; and
- Cache Creek Facility: Schwarzgruber & Sons.

The closest mining activities are the Cache Creek Facility and the Woodland Plant on the south bank of Cache Creek, and both facilities are approximately 3 miles south of the project area (Yolo County 2005). According to the California Division of Mines and Geology, the project area is classified as MRZ-2 (CDMG 1988).

3.10.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant impact on energy and mineral resources if it would:

- conflict with adopted energy conservation plans;
- use non-renewable resources in a wasteful and inefficient manner;
- result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan; or
- result in the loss of availability of a known mineral resource that would be of future value to the region and state residents.

3.10.3 ENVIRONMENTAL CONSEQUENCES

Yolo County has not adopted energy conservation plans. The Proposed Action would not involve the misuse or overuse of energy; therefore, the Proposed Action would not conflict with energy conservation plans. Construction of the Proposed Action would require some material resources that would be borrowed from the landside of the setback levees or from an off-site source. Construction would result in vehicle trips for equipment, supplies, and possibly borrow materials, and commute trips by employees building the setback levees; however, the effects are minimal and would be temporary for construction.

The project area is located on land classified by the California Department of Mines and Geology as MRZ-2, an area where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists (CDMG 1988). The primary mineral resource presently being extracted in the county is aggregate, which is used as an important material in Portland cement concrete, asphalt concrete, plaster, stucco, and as a road base material.

The nearest mining activities to the project area are on the south bank of Cache Creek, approximately 3 miles south of the Proposed Action location. Construction of the setback levees would not impede or interfere with the establishment or continuation of existing mineral extraction operations.

The project area is within the OCMP and CCRMP planning area. However, the project area is not identified by the OCMP as an area where mining activities are planned to occur in the future. Thus, implementation of the Proposed Action would not result in the loss of availability of a known mineral resource that would be of future value to the region and state residents.

The setback levees at Sites 1 and 2 would cover approximately 1.5 acres each for a total of approximately 3 acres required for the Proposed Action. This is approximately 0.02% of the total acreage mapped as MRZ-2 (18,452 acres) in the OCMP planning area. Given the relatively small amount of acreage required for construction of the setback levees, the Proposed Action would not significantly affect locally important mineral resources.

Therefore, implementation of the Proposed Action would have **less-than-significant** impacts on energy and mineral resources.

3.11 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. Hazards and Hazardous Materials. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

This section describes the existing conditions of hazards and hazardous materials within the project area, potentially significant effects from implementation of the Proposed Action, and mitigation, if necessary, to reduce the effects of the Proposed Action.

3.11.1 AFFECTED ENVIRONMENT

In March 2000, a Phase I Environmental Site Assessment (site assessment) was performed for Lower Cache Creek, the existing levees, and the Cache Creek settling basin. The records investigation included a 1-mile corridor on the landside of Cache Creek. The site assessment identified environmental concerns including asbestos, construction and demolition debris, drums, landfill or solid waste disposal sites, pits, waste disposal ponds or lagoons, wastewater, fill dirt, depressions, mounds, Polychlorinated Biphenyl (PCB)-containing transformers, structures used for the storage of chemicals, and tanks. None of these objects are located within the project area (USACE 2000 cited in USACE 2002).

Gravel is mined within the western portion of the Cache Creek watershed. The gravel mining does not involve chemical extraction, so there is no hazardous, toxic, or radioactive waste (HTRW) contamination associated with the mining. Common fuels and lubricants are used to operate and maintain the mining equipment.

Surface water and sediment flowing from upgradient sources contain elevated concentrations of boron and mercury. Elevated boron is a result of naturally occurring mineral spring sources, whereas mercury presence results from mercury mining and natural minerals. During periods of lower streamflow in Cache Creek, boron containing minerals precipitate along the banks of the creek. Mercury remains in creek bottom sediments. Both minerals are an HTRW concern for reuse of streambank soil and creek bottom sediments.

Groundwater in the project area is typically shallow and in contact with surface water for most of the year. Based on available data, groundwater has not been affected by manmade chemicals, but there are localized areas of elevated boron concentrations due to naturally occurring soil minerals (USACE 2002).

3.11.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant impact on hazards and hazardous materials if it would:

- create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- be located on a site which is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area;
- for a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the area;
- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

3.11.3 ENVIRONMENTAL CONSEQUENCES

During construction of the setback levees within the project area, hazardous materials such as fuels and lubricants would be used to operate construction equipment such as scrapers, excavators, compactors, haul trucks, and loaders. Fuels and lubricants have the potential to be released into the environment in the project area causing environmental and/or human exposure to these hazards. This impact would be potentially significant.

Implementation of Mitigation Measures 3.6-1 in Section 3.6 "Hydrology and Water Quality" and 3.11-1 would reduce this impact to a **less-than-significant** level.

Mitigation Measure 3.11-1: Ensure That All Employees Handling Hazardous Materials Are Trained In the Safe Handling and Storage of Hazardous Materials.

Prior to the commencement of project construction, the Reclamation Board and USACE or their contractor shall:

- ensure that any employee handling hazardous materials is trained in the safe handling and storage of hazardous materials and trained to follow all applicable regulations with regard to such hazardous materials; and

- identify a staging area where hazardous materials will be stored during construction in accordance with applicable state and federal regulations.

Soil-disturbing activities would be necessary to prepare the project area for construction of the setback levees. However, there were no hazards within the project area identified in the site assessment completed for Lower Cache Creek, nor is the project area identified by the U.S. Environmental Protection Agency (EPA) as a hazards materials site (EPA 2005b). There are no known sources of hazardous materials within the project area; therefore, construction workers would not be exposed to any existing hazards. This impact would be **less than significant**.

The project area is not located within 1/4 mile of an existing or proposed school, or within 2 miles of a public airport or public use airport. Therefore, there would not be any safety hazards or hazardous materials that would affect schools or airports. There would be **no impact**.

3.12 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

This section provides an overview of existing public services in the project area, including fire protection, police service, and school facilities. Impacts are evaluated in relation to increased demand for public services associated with the proposed action. Mitigation measures are proposed, if necessary, to reduce impacts. Potential impacts on parks and recreational facilities are discussed in Section 3.15, Recreation.

3.12.1 AFFECTED ENVIRONMENT

FIRE PROTECTION

The only independent fire suppression district in the county, the Yolo Fire Protection District (FPD) is generally located in northeastern Yolo County. Yolo FPD is bordered by Knights Landing FPD to the northeast; Zamora FPD to the northwest; Madison FPD to the west; and Willow Oak, Woodland Springlake and Elkhorn FPDs to the south. These neighboring FPDs have equipment and staff available to the Yolo FPD should the need arise. Yolo is the only town within the FPD and consists mostly of residential development (Yolo County Local Agency Formation Commission 2005).

The Yolo FPD staff consists of a volunteer fire chief and 23 volunteer firefighters. One of the volunteers is a certified emergency medical technician, and the remaining volunteers are certified to administer CPR and first aid. The district's major equipment is composed of four engines/fire trucks, one tender, and one rescue squad truck (LAFCO 2005).

POLICE SERVICES

The Yolo County Sheriffs Department (YCSD) provides law enforcement services to unincorporated areas of Yolo County. YCSD has a staff of approximately 227 personnel (85 sworn and 142 civilian); the staff serves a total area of 1,035 square miles in Yolo County. YCSD contains the following units: three K-9 units, two Capay augmented patrol deputies, one sergeant and two officers for problem-oriented policing, 13 officers on 24-hour patrol (divided into three shifts), four shift sergeants, one sergeant of communication resources, one sergeant and

four detectives for Yolo Officers Narcotics Enforcement Team, and one sergeant and two deputies for boat patrol (Yolo County 2002d, 2005).

The YCSD patrol officers are dispatched by Yolo Communications Emergency Services Agency (YCESA). YCESA is a countywide agency set up through a joint powers agreement; the agency dispatches calls for fire protection, law enforcement, and animal services for numerous cities in Yolo County, such as Winters and West Sacramento, as well as unincorporated areas. YCSD has mutual aid agreements with other law enforcement jurisdictions to obtain assistance with calls made to YCSD regarding activities in designated locations. Patrol vehicles for YCSD are dispatched according to the areas they are patrolling and the location of the activity requiring law enforcement or assistance (Yolo County 2002d, 2005).

SCHOOL FACILITIES

Woodland Joint Unified School District provides educational services to the town of Yolo and the project area. Woodland Joint Unified School District includes 12 elementary schools (grades K–5), two middle schools (grades 6–8), two comprehensive senior high schools (grades 9–12), a continuation high school, and an adult school. Student population for the district exceeds 10,500 with an annual growth rate of approximately 2% (Woodland Joint Unified School District 2005). The town of Yolo has one school, Cache Creek Continuation High School, which had an enrollment of 161 students in the 2003–2004 school year (Woodland Joint Unified School District 2004).

3.12.2 THRESHOLD OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant impact on public services if it would do any of the following:

- result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for:
    - fire protection,
    - police protection,
    - schools,
    - parks, or
    - other public facilities.

3.12.3 ENVIRONMENTAL CONSEQUENCES

The Proposed Action does not include proposals for new housing. Therefore, the Proposed Action would not generate students or increase demands for school services or facilities. The Proposed Action would not increase demands for fire protection, sheriff services, or other public facilities because the Proposed Action would not include new structures, such as housing or businesses, or indirectly increase housing or businesses in the project area. Construction of the setback levees would not change the type or intensity of land uses in the area; therefore, the demand for fire and sheriff protection services would be the same for the Proposed Action as that currently provided on-site. Emergency response services would be unhampered during project construction and operation. Nonetheless, plans to ensure the continuation of emergency response services during construction would be incorporated into final project specifications. Because the Proposed Action would use existing public services and no additional services or changes to existing services would be required, the Proposed Action would have **no effect** on public services.

3.13 PUBLIC UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. Utilities and Service Systems. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

This section provides an overview of utilities and service systems in the project area, including water supply, wastewater service, solid waste management, and stormwater drainage. Impacts are evaluated in relation to increased demand for utilities and service systems associated with the Proposed Action.

3.13.1 AFFECTED ENVIRONMENT

The project area is located on the north bank of Cache Creek at LM 0.8 and LM 1.1 on agricultural land south of the town of Yolo and I-5. Within the project area, there are no major utility corridors. The majority of the residents in the unincorporated area have septic systems and wells that eliminate the need for water and sewer mains originating from the town of Yolo or the City of Woodland. Utilities such as electrical transmission lines, gas pipelines, and communications lines run primarily along the major roads through the project area (Highway 113, Highway 16, County Road 17, and County Road 99) before branching out to serve more remote customers. Closer to the town of Yolo and the Woodland city limits there are gas, water, and sewer pipes, as well as electric and communications that serve local businesses and residents (USACE and State Reclamation Board of California 2003).

3.13.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant impact on public utilities and service systems if it would:

- exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- have insufficient water supplies available to serve the project from existing or permitted entitlements and resources, or require new or expanded entitlements;
- result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- violate federal, state, or local statues and regulations related to solid waste.

3.13.3 ENVIRONMENTAL CONSEQUENCES

The Proposed Action does not have components that would require electricity, natural gas, or communication services. However, two existing PG&E power poles that are located within the project area would be relocated by PG&E. These power poles are located within the construction area for the setback levee at Site 2 and would be moved to the north of the setback levee. These power poles also support SBC's telephone lines. Although these power poles would need to be relocated, effects on electricity and communication services in the project area would be temporary, and the power poles would be relocated in coordination and compliance with PG&E and SBC's regulations. Therefore, this impact would be **less than significant**.

Construction of the setback levees would not create any new demands for water supply or generate any new source of wastewater, and therefore would not result in the construction of new or expanded water and wastewater conveyance or treatment facilities, or exceed any applicable wastewater treatment requirements. However, irrigation wells located at Site 2 within the project area would need to be relocated. The effects on water supply from relocation of these irrigation wells would be temporary. Therefore, this impact would be **less than significant**.

The Proposed Action does not include construction of impermeable surfaces and would not generate stormwater runoff or the need for new stormwater drainage facilities or expansion of existing facilities. The Proposed Action would not generate any additional solid waste, create a demand for solid waste disposal capacity, or cause any conflict with laws or statutes that relate to solid waste. Therefore, the Proposed Action would have a **less-than-significant** impact on utilities and service systems.

3.14 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Recreation. Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

This section provides an overview of existing recreation resources and activities in the project area. Impacts are evaluated in relation to increased demand for recreational facilities or effects on existing recreation associated with the Proposed Action.

3.14.1 AFFECTED ENVIRONMENT

Yolo County owns and maintains 11 park/recreation facilities comprised of approximately 1,320 acres, with 25% of these parks considered to be fully developed (Yolo County 2001a). The Cache Creek watershed extends from Yolo County into Lake and Colusa Counties. The creek is a major landscape feature across Yolo County, flowing through the Capay Valley, across the lands north of Esparto, south of the Dunnigan Hills, and then north of Woodland, into its settling basin on the Yolo Bypass (Yolo County 2002a, 2002b).

Cache Creek Canyon Regional Park, the largest park in Yolo County, is about 35 miles west of the town of Yolo and adjacent to Highway 16. The size of the park is approximately 760 acres and consists of both developed and undeveloped areas. This park also provides access to nearly 50,000 acres of U.S. Bureau of Land Management wilderness property. Cache Creek Canyon Regional Park offers picnicking, nature study, swimming, fishing, hiking and horseback trails, innertubing, and camping. Private outfitters offer whitewater rafting. Facilities at the middle site include three group and 45 individual campsites, along with picnic and parking areas (Yolo County 2002b).

Yolo County operates one developed community park, Esparto Community Park, off Highway 16 (Yolo County 2005). Other parks in Yolo County are designated for open space or boat launching and bank fishing on the Sacramento River and include:

- Clarksburg Boat Launch Facility (3.95 acres),
- Elkhorn Regional Park (48 acres),
- Helvetia Oak Grove (11 acres),
- Yolo County Grasslands Regional Park (320 acres),
- Airport Park (1.6 acres),
- Camp Haswell Park (5 acres),
- Knights Landing Boat Launch (5 acres),
- Vernon A. Nichols Park (25 acres),
- Cache Creek Canyon Regional Park (752 acres), and
- Putah Creek Fishing Access Areas (83 acres).

The project area is located on the north bank of Cache Creek at LM 0.8 and LM 1.1. There are currently no existing recreation opportunities in the project area. The closest recreational area to the project location is the Esparto Community Park, which is approximately 10 miles southwest of the project area. The park includes picnic tables, barbecues, turf area, and a playground (Yolo County Parks and Natural Resources 2005).

3.14.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The Proposed Action would have a significant impact on recreation or recreational facilities if it would:

- result in the increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

In addition, the Proposed Action was determined to result in a significant effect on recreational resources if it would:

- substantially reduce recreational opportunities or substantially degrade recreational experiences.

3.14.3 ENVIRONMENTAL CONSEQUENCES

There are currently no existing recreation opportunities in the project area or in the vicinity of the Proposed Action. Public access to Cache Creek is restricted as a result of private lands that border the creek in the project area. The existing levees are currently not used for recreational purposes, and are used exclusively for levee monitoring and maintenance.

The Proposed Action does not include proposals for new housing, recreational facilities, or recreational resources. Because there would not be any additional residents generated by the Proposed Action or increased access to existing recreational facilities, the Proposed Action would not increase demands on parks or other recreational facilities, and would not result in accelerated physical deterioration of existing recreational facilities. The Proposed Action would construct setback levees on private land, and these new setback levees would not be used for recreational purposes. The setback levees would not negatively affect existing recreational opportunities or facilities. The Proposed Action would have **no effect** on recreation.

3.15 POPULATION, HOUSING, SOCIOECONOMIC EFFECTS, AND ENVIRONMENTAL JUSTICE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Population and Housing. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

This analysis documents the existing population, housing, and socioeconomic conditions in Yolo County and the town of Yolo. It presents estimates of changes to those conditions by implementation of the Proposed Action, or changes that could trigger adverse physical effects in the region. This section also discusses effects of the Proposed Action on environmental justice.

3.15.1 AFFECTED ENVIRONMENT

POPULATION

The project area is located in Yolo County, near the town of Yolo. The area is primarily rural and sparsely populated. County has grown moderately in recent years, from 141,092 in 1990 to 168,660 in 2000. Population projections for the county are 236,110 in 2020 and 266,000 by 2025 (SACOG 2001). The gain in new residents would be approximately 97,300 by 2025, or a little over 37%. Based on county land use policies and zoning and Local Agency Formation Commission policies, it is evident that most of that population increase would occur in the cities, with limited growth in the unincorporated communities. The population of the town of Yolo as of 1997 was 457.

HOUSING

According to information provided by the Sacramento Area Council of Governments (SACOG), only 21 housing units were constructed in the Yolo County unincorporated area in 1999, compared to a total of 1,301 in the incorporated cities. However, approximately 450 parcels in the unincorporated area of Yolo County have been tentatively approved for development of single-family homes (Yolo County 2002, 2005). There were an estimated 161 housing units in the town of Yolo according to 1997 data (Yolo County 2005).

SOCIOECOMONIC EFFECTS

Yolo County covers approximately 661,790 acres, with approximately 440,783 acres, or nearly 67% of the county, used or available for agriculture (row and field crops, orchards, vineyards, and grazing lands). Agriculture is an important source of employment and tax revenue for Yolo County. Agriculture employs two types of workers: migrant workers, who are bussed in for seasonal work, and permanent workers, who live in the area and

work year-round (Yolo County 2002c, 2005). Besides scattered rural residences, the project area on the north side of Cache Creek is used almost exclusively for agricultural production.

ENVIRONMENTAL JUSTICE

On February 11, 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority and Low-Income Populations." Environmental justice refers to "nondiscrimination in federal programs substantially affecting human health and the environment" and "providing minority communities and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment". In particular, it involves preventing minority and low-income communities from being subjected to disproportionately high and adverse environmental effects of federal actions. In complying with NEPA, USACE is required to consider human health, economic, and social impacts of the Proposed Action on minority and low-income communities (Executive Order 12898).

The majority of the county's population (58.1%) is white or Caucasian. Minorities of African American, Asian, Hawaiian or Pacific Islander, and Hispanic ethnicity comprise the remaining 41.9% of the county's population (U.S. Census Bureau 2002). In 1999, per capita personal income for Yolo County was $27,037, and the county had an unemployment rate of 4.3%. The per capital personal income was below the State average of $29,856, although not below the State poverty level (California Department of Finance 2000). There are no designated affordable housing units within the project area.

3.15.2 THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. Project impacts to population, housing, socioeconomic, and environmental justice are considered significant if implementation of the Proposed Action would do any of the following:

- cumulatively exceed official regional or local population projections;
- induce substantial population growth in an area, either directly (for example, by proposed new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere;
- result in a loss of agricultural production and value that would have a substantial adverse economic effect in the local or regional area in which facilities are located such that substantial quantities of agricultural land would be taken out of production in addition to those directly affected by the Proposed Action; or
- disrupt or divide an established low-income or minority community;

3.15.3 ENVIRONMENTAL CONSEQUENCES

The Proposed Action would not involve the construction of new homes or businesses or the extension of roads or infrastructure. The project site is located on undeveloped agricultural land and; therefore, would not involve the displacement of any existing housing, including affordable housing, nor would the Proposed Action disrupt or divide an established community, including low-income or minority communities. Construction of the proposed setback levee would maintain current flood protection levels and would not increase flood protection to a level that would allow additional growth. Impacts associated with the Proposed Action would be short-term in nature,

would be mitigated to a less-than-significant level, and would not disproportionately affect low-income or minority populations. Furthermore, the Proposed Action would benefit the community as a whole by reducing the level of flood risk. Implementation of the Proposed Action would have no effect on current and/or planned population and housing growth patterns within Yolo County and would not affect the population and housing goals as outlined in the County General Plan. Therefore, the Proposed Action would have **no effect** on population, housing, or environmental justice.

Construction of the Proposed Action could disrupt agricultural operations on lands used for the setback levees, resulting in a temporary loss of economic and fiscal benefits associated with agricultural production. Currently, 5.06 acres would be removed from agricultural production for project construction and operation. This is a minor loss relative to the total agricultural lands locally and regionally in Yolo County. Because the Proposed Action would not pave or permanently alter the land, the land used for the Proposed Action could potentially be farmed in the future. Moreover, by increasing flood protection, the Proposed Action provides a long-term socioeconomic benefit by protecting damage to farmland that could otherwise flood without the Proposed Action. Because the potential loss of these benefits would be small and are offset to an unknown degree by reduced flood damage, construction- and operations-related effects of the Proposed Action on economic and fiscal benefits associated with agricultural production would be **less than significant**.

Project implementation would employ construction workers, but would not significantly affect the local work force. According to the latest labor data available from the U.S. Census Bureau, 4,259 residents in the county are employed in the construction industry (U.S. Census Bureau 2002). This existing number of residents in the county who are employed in the construction industry would be sufficient to meet the demand for construction workers that would be generated by the Proposed Action. Therefore, implementation of the Proposed Action would result in **no effect** on socioeconomics.

4 CUMULATIVE AND GROWTH-INDUCING EFFECTS

4.1 CUMULATIVE EFFECTS

State CEQA Guidelines and NEPA regulations require that the cumulative impacts of a Proposed Action be addressed in an IS/EA when the project's incremental effect is cumulatively considerable (15130[a], 40 CFR 1508.25[a][2]). Cumulative impacts are impacts on the environment that result from the incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions (15355[b], 40 CFR 1508.7). Such impacts can result from individually minor but collectively significant actions taking place over time.

Section 15130 of the State CEQA Guidelines states that the discussion of cumulative impacts need not provide as much detail as the discussion of effects attributable to the project alone. The level of detail should be guided by what is practical and reasonable.

Other relevant projects that could be cumulatively considerable when combined with the effects of the Proposed Action are discussed below. The potential cumulative effects of the Proposed Action in combination with these projects are evaluated by resource area and are discussed below.

4.1.1 OTHER RELEVANT PROJECTS

SACRAMENTO RIVER BANK PROTECTION PROJECT (EXISTING PROJECT) AND CACHE CREEK NORTH LEVEE SETBACK PROJECT – CRITICAL EROSION SITE 3 (POTENTIAL FUTURE ACTION)

The SRBPP, authorized by the Flood Control Act of 1960, is a continuing construction project to maintain the existing levees and other flood control facilities of the FCP. The FCP consists of approximately 1,300 miles of levees and overflow weirs, pumping plants, and bypass channels that protect communities and agricultural lands in the Sacramento Valley and the Sacramento-San Joaquin Delta. Levees along Cache Creek and the easterly and westerly levees of the Cache Creek Settling Basin until just upstream of I-5 are within the authority of SRBPP.

A setback levee is being proposed along Cache Creek at LM 2.4, approximately 1 mile downstream of the Proposed Action. This setback levee is being proposed by the Reclamation Board and USACE to protect a critical erosion site that was added to the SRBPP erosion inventory in 2002. Construction of this 890-foot-long setback levee would take approximately 7,300 cubic yards of fill material and 180 tons of aggregate base. The setback levee would occupy approximately 2.58 acres of land. Construction of this setback levee is proposed for fall 2006. Potentially more complex land ownership issues, overall project cost considerations, and a different implementation schedule for Site 3 led the Reclamation Board and USACE to pursue a separate IS/EA for Site 3.

Construction of the setback levee at Site 3 would have similar, but slightly less impacts compared to the Proposed Action. The setback levee at Site 3 would not result in any impacts to public utilities and service systems, public services, recreation, or population and housing. This setback levee would result in less-than-significant impacts to land use and agricultural resources, aesthetics, traffic, and mineral resources, and it would have a potentially significant impact on air quality, noise, water quality, biological resources, cultural resources, geology and soils, and hazards and hazardous materials. However, implementation of mitigation measures would reduce these impacts to a less-than-significant level. Therefore, construction of a setback levee at Site 3 would not have a significant effect on the environment. Cumulative effects of Sites 1, 2, and 3 would not have a significant effect on the environment. See Section 4.1.2 for a detailed discussion of cumulative effects of Sites 1, 2, and 3.

CACHE CREEK SETTLING BASIN (EXISTING PROJECT)

As part of the FCP, USACE constructed the Cache Creek settling basin in 1937 to trap sediment from Cache Creek that would otherwise settle in the Yolo Bypass and reduce its capacity. To increase the life span of the basin, the capacity was increased in 1991 (USACE 2002).

LOWER CACHE CREEK FEASIBILITY STUDY PROJECTS (POTENTIAL FUTURE ACTION)

The purpose of the Lower Cache Creek Feasibility Study (Feasibility Study) and subsequent EIS/EIR is to address flooding issues in the lower reach of Cache Creek. These documents were prepared jointly by USACE, the Reclamation Board, and the City of Woodland. This study covers the entire Cache Creek watershed from the eastern foothills of the Coast Range to the western levee of the Yolo Bypass. The focus of the study is to evaluate flood damage reduction projects specific to Lower Cache Creek, the City of Woodland, and the adjacent unincorporated areas of Yolo County. The project area for the Proposed Action is covered in the study area of this Feasibility Study, and the study evaluates the use of setback levees and raising existing levees on a comprehensive scale for the entire Lower Cache Creek watershed (USACE 2002). However, the Proposed Action is not identified as part of the Feasibility Study.

LOWER CACHE CREEK FLOOD BARRIER PLAN (POTENTIAL FUTURE ACTION)

Portions of the City of Woodland are designated by the Federal Emergency Management Agency (FEMA) as being in the 100-year floodplain. One alternative for protecting lands in the 100-year floodplain is construction of a floodwall. As part of the Lower Cache Creek Feasibility Study, the Lower Cache Creek Flood Barrier (LCCFB) Plan was considered as an alternative. This plan would include construction of a levee along the City of Woodland-Yolo County northern boundary. The LCCFB would extend 6 miles, and would vary from 2.5 feet above the road surface to 18 feet in height at the west levee of the settling basin. This alternative is not being carried forward at this time and would have no effect on the Proposed Action.

UPPER CACHE CREEK WILD AND SCENIC DESIGNATION (EXISTING PROJECT)

On October 6, 2005, Assembly Bill 1328 (AB 1328) was signed into law, designating 31 miles of Upper Cache Creek to the State Wild and Scenic Rivers System. This section of Cache Creek flows through Lake and Yolo Counties and has outstanding wildlife, cultural, recreational, and scenic value. It is one of the most popular whitewater boating streams near the Bay Area and Sacramento. The region hosts the second largest wintering bald eagle population in California and provides habitat for a variety of other species (California League of Conservation Voters 2005). The Proposed Action would occur on Lower Cache Creek and; therefore, would not have any effect on the resources of Cache Creek under the Wild and Scenic designation.

OFF-CHANNEL GRAVEL MINING (EXISTING PROJECTS)

There are currently seven off-channel mining operations (Schwarzgruber, Syar, Solano, Teichert [Woodland], Teichert [Esparto], Granite Capay, and Granite Woodland) that are permitted along Cache Creek (Yolo County 2001b cited in USACE 2002). The gravel mining reach of the Cache Creek Basin extends approximately 14.5 miles along Cache Creek between the towns of Capay and Yolo. Facilities include sand and gravel processing plants, asphalt-concrete hot mix plants, concrete batch plants, material stockpiles, settling ponds, water wells, stationary and mobile equipment, and haul roads (USACE 1995 cited in USACE 2002). Mining of this reach began in 1996 and is expected to continue for 30 years (USACE 2002).

CLEAR LAKE DAM (EXISTING PROJECT)

Water is released from Clear Lake through the Clear Lake Outlet Channel and Clear Lake Dam to Cache Creek. The dam regulates lake levels, provides summer irrigation releases, generates hydroelectric power, and partially regulates flows in Cache Creek (USACE 1995 cited in USACE 2002).

CACHE CREEK CONSERVANCY AND THE COUNTY OF YOLO INVASIVE WEED REMOVAL PROJECT (EXISTING PROJECT)

This 10-year project (started in 2001) funded by the Wildlife Conservation Board and the California Bay-Delta Authority removes arundo and tamarisk from the lower reaches of Cache Creek for the purposes of improved flood control, bank stabilization, and habitat enhancement (Yolo County 2001b cited in USACE 2002).

4.1.2 CUMULATIVE EFFECTS

LAND USE AND AGRICULTURAL RESOURCES

The Proposed Action, either alone or combined with the other projects (including the Site 3 project), would not have a significant cumulative effect on land use or agricultural resources and; therefore, would not contribute to any cumulative effect on land use or agricultural resources. Similar to the Proposed Action, the Site 3 project would result in a permanent loss of acreage (2.58 acres) of Prime Farmlands. Returning the land to cultivation, however, would require only removing the setback levees and implementing some soil preparation. Moreover, construction of setback levees at Site 1, Site 2, and Site 3 provides additional flood protection that cumulatively protects existing land uses and agricultural production within the project area and downstream. In addition, a very small percentage of agricultural land would be converted to open space for these projects. These lands would qualify as "protected resource lands" as defined by the U.S. Department of Agriculture's Farmland and Conversion Impact Rating Form. Because flood control projects are consistent with the historical use of the land within the project site, and because a relatively small amount of land would be converted to non-agricultural use for protection of the remaining agricultural lands and uses, these impacts would be less than significant. While overall there has been a significant cumulative impact on agricultural resources in the region, primarily from urban development, the Proposed Action's incremental effect is not cumulatively considerable and protects valuable agricultural lands from flooding.

AESTHETICS

The Proposed Action would not have a cumulatively considerable effect on aesthetics when considered with other past, present, and reasonably foreseeable projects. Therefore, the Proposed Action would not contribute to any cumulative effect on aesthetics.

AIR QUALITY

As described in Section 3.3, the Proposed Action would result in construction-related effects on air quality. Construction of the setback levees would generate criteria pollutants such as NO_x, ROG, PM_{10}, and CO. All construction activities within the air basin would contribute to current air quality violations similar to those of the Proposed Action. Because of the nonattainment status of the air basin, additional contributions are potentially significant cumulative effects.

Mitigation for the Proposed Action consists of implementation of Best Management Practices (BMPs) and onsite mitigation including dust control, proper tuning and maintenance of construction equipment, limiting vehicle speeds to 15 mph on unpaved roads, and suspending excavation activities if winds exceed 20 mph. Because these mitigation measures and others reduce the air quality impacts to a less-than-significant level, the project's

incremental contribution to the significant cumulative effect is not cumulatively considerable. Therefore, this impact is less than significant. Moreover, all air quality effects are temporary during construction.

NOISE

As described in Section 3.4, the Proposed Action would result in construction-related effects on noise. Construction of the setback levees could result in combined intermittent noise levels up to 90 dBA 50 feet from the project area. Specifically, construction-generated noise levels could exceed 78 and 76 dBA at the closet rural residences at approximately 200 and 250 feet from Sites 1 and 2, respectively. These construction-related noise levels could create a substantial temporary increase in ambient noise levels; therefore, the contributions of the Proposed Action to noise levels in the project area are potentially significant cumulative effects.

Mitigation for the Proposed Action consists of properly maintaining and equipping construction equipment with noise control, such as mufflers, in accordance with manufacturers' specifications and limiting construction to the hours of 6 a.m. to 9 p.m. Construction equipment travel would also be arranged to minimize disturbance to nearby residences and a disturbance coordinator would be identified to resolve noise related complaints. Although construction of the setback levee at Site 3 would also generate a temporary increase in noise levels, construction of this setback levee would not take place at the same time as the Proposed Action. Because the Proposed Action would implement site-specific mitigation, and would not generate increased noise levels at the same time as the Site 3 project, the incremental effect of the Proposed Action is not cumulatively considerable. This impact is less than significant. Moreover, all noise effects are temporary during construction.

TRAFFIC

The Proposed Action would not have a cumulatively considerable effect on traffic and circulation when considered with other past, present, and reasonably foreseeable projects. Therefore, this impact is less than significant. Moreover, all traffic effects are temporary during construction.

HYDROLOGY AND WATER QUALITY

Section 3.6 identifies the effects of the Proposed Action on hydrology and water quality. The Proposed Action could result in temporary discharges of sediment and other contaminants in stormwater runoff to Cache Creek. Because some soil erosion and sedimentation of Cache Creek could occur, this is a potentially significant impact on water quality. The contribution of the Proposed Action to water quality degradation in the project area could be a potentially significant cumulative effect.

Mitigation for the Proposed Action consists of preparing and implementing a SWPPP that would include measures to control soil erosion and waste discharges from construction areas. The construction contractor would also submit a NOI to the Central Valley RWQCB for stormwater discharges associated with general construction activities. Because the Proposed Action would implement site-specific mitigation consistent with the Central Valley RWQCB program, and the Proposed Action's effects to Cache Creek hydrology and water quality during a major runoff event would be undetectable, the incremental effect of the Proposed Action is not cumulatively considerable when considered with other past, present, and reasonably foreseeable projects. Therefore, this impact is less than significant.

BIOLOGICAL RESOURCES

Section 3.7 identifies the effects of the Proposed Action on biological resources. The Proposed Action could impact elderberry shrubs, special-status fish, raptors, and special-status birds. Construction of the setback levees could also have an impact on riparian and other natural communities, and HCPs within the project area. The impacts of the Proposed Action on biological resources in the project area could be potentially significant cumulative effects.

Mitigation for the Proposed Action consists of establishing buffers around sensitive resources, and conducting pre-construction surveys. Because the Proposed Action would implement site-specific mitigation consistent with USFWS and DFG regulations, the incremental effect of the Proposed Action is not cumulatively considerable when considered with other past, present, and reasonably foreseeable projects. Therefore this impact is less than significant.

CULTURAL RESOURCES

Section 3.8 identifies the effects of the Proposed Action on cultural resources. The Proposed Action has the potential to uncover unknown or undocumented subsurface cultural remains or Native American burials. The impacts of the Proposed Action on cultural resources in the project area are potentially significant and could be cumulatively considerable.

Mitigation for the Proposed Action would include halting construction immediately and notifying a qualified professional archaeologist of any discovery of cultural materials or human remains. The archaeologist would determine whether the resource is potentially significant as per the CRHR/NRHP and would develop appropriate mitigation. If a Native American burial is discovered, California Health and Safety Code Section 7050.5 and Section 7052 and California Public Resources Code Section 5097 would be complied with to ensure the site is properly protected. Because the Proposed Action would implement site-specific mitigation consistent with the California Health and Safety Code and the California Public Resources Code, the incremental effect of the Proposed Action is not cumulatively considerable when considered with other past, present, and reasonably foreseeable projects. Therefore this impact is less than significant.

GEOLOGY AND SOILS

Section 3.9 identifies the effects of the Proposed Action on geology and soils. Disturbance of topsoil for levee construction and creating the notches in the existing levee could increase the potential for wind and water erosion in the project area. This impact on geology and soils in the project area is potentially significant and could be cumulatively considerable.

Mitigation for the Proposed Action would consist of preparing and implementing a SWPPP that would include measures to control soil erosion and waste discharges from construction areas. The construction contractor would also submit a NOI to the Central Valley RWQCB for stormwater discharges associated with general construction activities. Because the Proposed Action would implement site-specific mitigation consistent with the Central Valley RWQCB program, the incremental effect of the Proposed Action is not cumulatively considerable when considered with other past, present, and reasonably foreseeable projects. Therefore, this impact is less than significant.

ENERGY AND MINERAL RESOURCES

The Proposed Action would not have any effect on energy or mineral resources and therefore, would not contribute to any cumulative effect on energy or mineral resources when considered with other past, present, and reasonably foreseeable projects.

HAZARDS AND HAZARDOUS MATERIALS

Section 3.10 identifies the effects of the Proposed Action on hazards and hazardous materials. During construction of the Proposed Action, fuels and lubricants have the potential to be released into the environment in the project area causing environmental and/or human exposure to these hazards. The impacts of the Proposed Action on hazards and hazardous materials in the project area are potentially significant and could be cumulatively considerable.

Mitigation for the Proposed Action would include preparing and implementing a SWPPP with BMPs and ensuring that all employees handling hazardous materials are trained in the safe handling and storage of hazardous materials. Because the Proposed Action would implement site-specific mitigation, the incremental effect of the Proposed Action is not cumulatively considerable when considered with other past, present, and reasonably foreseeable projects. Therefore this impact is less than significant.

PUBLIC SERVICES

The Proposed Action would not have any effect on public services and; therefore, would not contribute to any cumulative effect on public services when considered with other past, present, and reasonably foreseeable projects.

PUBLIC UTILITIES AND SERVICE SYSTEMS

The Proposed Action would not have any effect on public utilities or service systems and; therefore, would not contribute to any cumulative effect on public utilities when considered with other past, present, and reasonably foreseeable projects.

RECREATION

The Proposed Action would not have any effect on recreation and; therefore, would not contribute to any cumulative effect on recreation when considered with other past, present, and reasonably foreseeable projects.

POPULATION AND HOUSING

The Proposed Action would not have any effect on population and housing, socioeconomics or environmental justice and; therefore, would not contribute to any cumulative effect on these resource areas when considered with other past, present, and reasonably foreseeable projects.

4.2 GROWTH-INDUCING EFFECTS

NEPA regulations require that the growth-inducing effects of the Proposed Action be addressed in any NEPA document, such as an EA.

4.2.1 GROWTH-INDUCING EFFECTS OF THE PROPOSED ACTION

The area protected by the levees at LM 0.8 and LM 1.1 include portions of Yolo County and the town of Yolo. Development and growth in these areas is controlled by Yolo County, and Yolo County has adopted a general plan consistent with state law. The general plan provides an overall framework for growth and development within the jurisdiction of Yolo County. Growth and development are also directly affected by local, regional, and national economic conditions.

The Proposed Action would reduce flood risk by constructing setback levees. The purpose of the Proposed Action is to protect the integrity of the existing levee system and to protect the lands immediately to the north of Cache Creek near the two critical erosion sites. The Proposed Action would not directly remove obstacles to growth, result in population increases, or encourage and facilitate other activities that could significantly affect the environment. The Proposed Action would not increase the amount of flood protection, thereby allowing growth along Cache Creek. Construction of the setback levees would maintain the integrity of the existing levee system and would maintain the same level of flood protection that was provided by the Cache Creek levee system prior to erosion at the identified sites. For further discussion of Growth-Inducing effects see Section 3.15, “Population and Housing”.

5 ALTERNATIVES

The SRBPP Project Development Team, consisting of DWR and USACE staff, and later a joint DWR Division of Engineering Team and DFM staff in partnership with USACE, identified and evaluated potential alternatives that could meet the project purpose. Alternatives considered included assessing the stability of the entire Cache Creek system, constructing setback levees (the Proposed Action), or stabilizing the banks at the eroding sites with manmade features (i.e., riprap, gabions, and sheet piles) (Instream Bank Protection Alternative). A system-wide stability evaluation was considered to be outside the purpose, and resources and solutions timeframe of the project, and was not pursued. Raising or strengthening the existing levee was also evaluated. However, due to the steepness of banks and depth of channel, a higher or wider levee would not halt the erosion of the site and; therefore, the existing levee would eventually be undermined and could collapse; this alternative would not meet the project purpose. This IS/EA evaluates the two feasible alternatives, the Proposed Action and the Instream Bank Protection Alternative, as well as the No-Action Alternative. This chapter describes potential environmental impacts under the No-Action Alternative and the Instream Bank Protection Alternative, and compares the levels of impact with impacts under the Proposed Action.

5.1 NO-ACTION ALTERNATIVE

The No-Action Alternative would result in the two setback levees not being constructed. None of the construction activities would occur, and the project area would remain relatively unchanged except for the increasing flood and erosion potential at Sites 1 and 2. The two critical erosion sites along Cache Creek would continue to erode and could result in levee failure and subsequent and persistent flooding of lands immediately to the north of Cache Creek in the project area. This alternative would not meet the need for maintaining flood protection for lands and residences located to the north of Cache Creek in the project area.

5.1.1 LAND USE AND AGRICULTURAL RESOURCES

The No-Action Alternative would be in compliance with the land use plans applicable to the project area, and it would be consistent with existing and surrounding land uses. The No-Action Alternative would not divide a community. This alternative would not permanently diminish or prevent agricultural uses on adjacent lands, nor would it result in the conversion of Prime Farmland to non-agricultural uses. However, potential flooding could adversely affect existing crops and croplands and would temporarily prevent agricultural uses on the lands to the north of the critical erosion sites. Therefore, the No-Action Alternative would have a less-than-significant impact on the existing land use and planning in the project area. By comparison, construction of the Proposed Action would result in the conversion of 5.06 acres of Prime Farmland to non-agricultural use, and approximately 3 acres of agricultural land would be temporarily used for access and staging areas. Because flood control projects are consistent with the historical use of land in the project area, and because a relatively small amount of land would be converted to non-agricultural use for protection of the remaining agricultural lands and uses, these impacts would be less than significant. Because the Proposed Action would not result in any significant impacts to land use or agricultural resources, the No-Action Alternative would not reduce or avoid any significant impacts related to this issue.

5.1.2 AESTHETICS

Under the No-Action Alternative, the setback levees would not be constructed and thus, the visual character of the project area would not be altered, views of the project area from surrounding areas would not be changed, and no new sources of light and glare would be created. By comparison, the Proposed Action would cause a slight change in the views of the project area. However, the setback levees would be consistent with the character of the project area, and the Proposed Action would not create any new sources of nighttime lighting or glare. Because the Proposed Action would not result in any significant impacts to aesthetics, the No-Action Alternative would not reduce or avoid any significant impacts related to this issue.

5.1.3 AIR QUALITY

Under the No-Action Alternative, the proposed setback levees would not be constructed and thus, no construction-related air quality impacts would be generated. By comparison, construction of the Proposed Action would result in construction-related vehicle trips and an increase in pollutants and dust in the project area. The additional vehicle trips would include commute trips by construction workers, operation of heavy equipment during construction of the setback levees, and haul trips for fill material to the project area. Mitigation would include such measures as, using water trucks to reduce dust in the project area, limiting vehicle speeds on unpaved roads to 15 mph, and submitting an inventory of all off-road construction equipment with horsepower equal to or greater than 50 horsepower that would be used for 40 hours or more during construction of the Proposed Action. Implementation of these and other mitigation measures would reduce the impacts on air quality to a less-than-significant level. The No-Action Alternative would result in reduced impacts on air quality compared to the Proposed Action. However, given continued erosion at the two sites, a future flood could indirectly cause air quality impacts resulting from the need for heavy equipment to enter the area for clearing flood-related debris and repairing the levee.

5.1.4 NOISE

Under the No-Action Alternative, the proposed setback levees would not be constructed and thus, no construction-related noise impacts would be generated. By comparison, construction of the Proposed Action would create a substantial temporary increase in ambient noise levels in the project area and could expose persons to or generate excessive groundborne vibration or groundborne noise levels. To mitigate these impacts, construction equipment would be properly maintained and equipped with noise control devices, construction activities would be limited to the hours of 6 a.m. to 9 p.m., and large bulldozers would not be operated within 57 feet of any residences. Implementation of these mitigation measures, and others, would reduce these impacts to a less-than-significant level. The No-Action Alternative would result in reduced impacts on noise levels compared to the Proposed Action. However, given continued erosion at the two sites, a future flood could indirectly cause noise impacts resulting from the need for heavy equipment to enter the area for clearing flood-related debris and repairing the levee.

5.1.5 TRAFFIC

The No-Action Alternative would not include the construction of setback levees and thus, would not generate any construction-related vehicle trips. The operation and maintenance of the No-Action Alternative would not create additional vehicle trips. By comparison, the Proposed Action would generate some construction-related traffic. The construction-related impacts to traffic would be minimal and would be temporary. Operation of the Proposed Action would not generate any additional vehicle trips. Because the Proposed Action would not result in any significant impacts on traffic, the No-Action Alternative would not reduce or avoid any significant impacts related to this issue. However, given continued erosion at the two sites, a future flood could indirectly cause traffic impacts resulting from the need for heavy equipment to enter the area for clearing flood-related debris and repairing the levee.

5.1.6 HYDROLOGY AND WATER QUALITY

Under the No-Action Alternative, Cache Creek would continue downcutting and eroding and would eventually begin widening, further increasing the erosion into the existing banks. Increased sedimentation from continued erosion could cause deterioration of water quality in the creek. Under the No-Action Alternative, there would be a high potential for significant and repeated flooding of lands immediately to the north of the creek. These impacts are considered to be significant impacts on hydrology and water quality. By comparison, the Proposed Action would have a less-than-significant impact on the hydrology of the project area by increasing the likelihood that potential future flood events are maintained within the Cache Creek channel at these two sites. The Proposed

Action has the potential to contribute sediment or other contaminants to Cache Creek that could cause degradation of water quality of Cache Creek. A SWPPP would be prepared and implemented to reduce the potential water quality impacts to a less-than-significant level. The No-Action Alternative results in a greater potential for flooding and significant water quality impacts from erosion during and after the flooding than would occur under the Proposed Action.

5.1.7 BIOLOGICAL RESOURCES

Under the No-Action Alternative, no setback levees would be constructed to prevent future erosion of the creek banks. Under this alternative, none of the impacts related to the Proposed Action would occur; however, the north bank of Cache Creek would continue to erode, which would eventually cause some loss of habitat for common and sensitive wildlife species.

SPECIAL-STATUS SPECIES

Under the No-Action Alternative, the north bank of Cache Creek would continue to erode, which could potentially cause the loss of one or more of the elderberry shrubs that are present on the upper bank of Cache Creek. The loss of elderberry shrubs would likely effect valley elderberry longhorn beetle. Loss of riparian vegetation along the north bank could potentially cause loss of nesting and foraging habitat for special-status birds, including raptors. Changes to the creek bank or bed, due to continued erosion, could also cause potential impacts to special-status fish. However, these potential impacts would be due to semi-natural processes and not due to construction. The project area does not support suitable habitat for special-status plants; therefore, no effects to special-status plants would occur due to the No-Action Alternative. By comparison, the Proposed Action could have an impact on valley elderberry longhorn beetle, special-status fish, nesting raptors, and special-status birds. Implementing mitigation measures such as installing protective fencing around sensitive resources, conducting pre-construction surveys for the presence of special-status species, and working outside of the nesting periods of key species would reduce these potential impacts to a less-than-significant level. Because the Proposed Action would not result in any permanent impacts to special-status species, the No-Action Alternative may result in slight benefits to special-status species.

RIPARIAN AND OTHER NATURAL COMMUNITIES

The Great Valley oak forest habitat present on the upper banks of Cache Creek is considered sensitive habitat by DFG. The continued erosion of the north bank of Cache Creek would eventually cause loss of some of the Great Valley oak forest habitat. The lands to the north of these patches are primarily agricultural and do not support similar habitat. Therefore, the No-Action Alternative may cause potential loss of sensitive habitat. These losses would be due to semi-natural processes and not due to construction. By comparison, the Proposed Action may have an impact on riparian and other natural communities in the project area. Erecting bright colored fencing around the riparian and other sensitive habitats would reduce this impact to a less-than-significant level. Because the Proposed Action would not result in any permanent effects on riparian or other natural communities, the No-Action Alternative may result in slight benefits to this resource.

WETLANDS

Cache Creek is considered an “other waters of the United States” as defined by Section 404 of the Clean Water Act. Any fill of waters of the United States is subject to USACE jurisdiction under Section 404 of the Clean Water Act. There would be no fill of waters of the United States associated with the No-Action Alternative; therefore, there would be no impacts to wetlands as a result of the No-Action Alternative. Because the Proposed Action would not result in any significant effects on wetlands, the No-Action Alternative would not reduce or avoid any significant effects to this resource.

WILDLIFE CORRIDORS

Although a variety of wildlife species may use the project area, it does not function as a known migratory corridor. The No-Action Alternative would not interfere with the movement of any native resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites. Therefore, the No-Action Alternative would have no effect on migratory corridors. Because the Proposed Action would not result in any significant effects on wildlife corridors, the No-Action Alternative would not reduce or avoid any significant effects to this resource.

LOCAL POLICIES

Yolo County does not currently have a tree ordinance or other regulation that protects trees within the County. In November 2005, the County adopted the Greenprint Initiative, which is a regional initiative that supports the planting of trees on public lands to improve and sustain the quality of life in the region. It is likely that tree policies will be developed during the Yolo County General Plan Update process that is currently underway. The County is currently applying for a grant from the DFG Wildlife Conservation Board to develop an oak woodland management plan. Because no policies to protect oaks are in place, and the No-Action Alternative would not disturb any oaks in the project area, there would be no impact. Because the Proposed Action would not result in any significant effects on local policies, the No-Action Alternative would not reduce or avoid any significant effects to this resource.

HABITAT CONSERVATION PLANS

The project area is within the boundaries of the proposed Yolo County HCP/NCCP, which is currently under development, as well as the CCRMP. The HCP/NCCP will describe the measures that local agencies will perform to conserve biological resources, obtain permits for urban growth and public infrastructure projects, and continue to maintain the agricultural heritage and productivity of the county. The purpose of the CCRMP is to manage the resources of Cache Creek in a more coordinated fashion to achieve numerous goals such as flood control, channel improvement and protection, erosion control, groundwater recharge, in-stream mining restrictions, wildlife enhancement, and riparian habitat protection and restoration. The CCRMP also intends to protect sensitive biological resources along the creek such as valley elderberry longhorn beetle, raptors, and other special-status species (Yolo County 2002b). The No-Action Alternative would not conflict with the provisions of either the Yolo County HCP/NCCP or CCRMP. Therefore, the No-Action Alternative would have no impact on any existing HCP/NCCPs or natural resources plans. Because the Proposed Action would not result in any significant effects on HCPs, the No-Action Alternative would not reduce or avoid any significant effects to this resource.

5.1.8 CULTURAL RESOURCES

Under the No-Action Alternative, the setback levees would not be constructed and thus, there would be no potential to disturb unrecorded cultural resources during construction. By comparison, the Proposed Action has the potential to expose unrecorded cultural resources during construction of the setback levees. Implementation of mitigation measures would reduce the impacts of the Proposed Action on cultural resources to a less-than-significant level. The No-Action Alternative would result in slightly reduced impacts to cultural resources compared to the Proposed Action. However, given continued erosion at the two sites, a future flood and attendant erosion could expose unrecorded cultural resources in a manner that completely destroys the resource.

5.1.9 GEOLOGY AND SOILS

The No-Action Alternative would not have any impacts on geology and soils in the project area. The potential for groundshaking and liquefaction in the project area would continue to exist under the No-Action Alternative. By comparison, the Proposed Action may result in some erosion due to notching of the existing levee. Preparation of

a SWPPP would reduce this impact to a less-than-significant level. The No-Action Alternative would have slightly reduced impacts to geology and soils compared to the Proposed Action.

5.1.10 Energy and Mineral Resources

The No-Action Alternative would not include the construction of setback levees and thus, would not have an impact on energy or mineral resources in the project area. By comparison, implementation of the Proposed Action would not reduce the availability of a known mineral resource that would be of future value to the region and state residents, nor would it have an impact on energy resources. The project area is within the OCMP and CCRMP planning area. However, the project area is not identified by the OCMP as an area where mining activities are planned to occur in the future. Because a relatively small amount of acreage (3.11 acres for Site 1 and 1.95 acres for Site 2) would be covered by the footprints of the setback levees, the Proposed Action would not significantly affect locally important mineral resources. The Proposed Action would have a less-than-significant impact with regard to energy and mineral resources. Because the Proposed Action would not result in any significant impacts to energy and mineral resources, the No-Action Alternative would not reduce or avoid any significant impacts related to this issue.

5.1.11 Hazards and Hazardous Materials

The No-Action Alternative would not include the construction of setback levees and thus, would not require the use of any hazards or hazardous materials. By comparison, fuels and lubricants used for construction have the potential to be released into the environment under the Proposed Action. Preparation and implementation of a SWPPP would reduce this impact to a less-than-significant level. The No-Action Alternative would result in slightly reduced impacts to hazards and hazardous materials compared to the Proposed Action. However, given continued erosion at the two sites, a future flood could expose any existing hazards or hazardous materials in the environment.

5.1.12 Public Services

Under the No-Action Alternative, there would be no effects on public services in the project area. The No-Action Alternative would not increase the demand for fire protection, sheriff services, public schools, parks, or other public facilities. By comparison, the Proposed Action would not result in the need for a significant increase or new services in fire protection, sheriff services, school facilities, or other public facilities. The Proposed Action would not include new structures, such as housing or businesses that would require increased public services. Implementation of the Proposed Action would have no effect on public services; therefore, the No-Action Alternative would not reduce or avoid any significant impacts associated with the Proposed Action.

5.1.13 Public Utilities and Service Systems

The No-Action Alternative would not have any effects on public utilities or service systems. The No-Action Alternative would not require electricity, natural gas, or communication services, nor would it generate any wastewater or create any demands for water supply. This alternative would not construct any impervious surfaces that would generate stormwater runoff, require new stormwater drainage facilities, or require the expansion of existing wastewater facilities. The No-Action Alternative would not create any additional solid waste. By comparison, the Proposed Action would not create a demand for any public utilities, nor would it generate any additional wastewater. The Proposed Action would require the relocation of two existing PG&E power poles that are within the levee setback area at Site 2. These power poles would be relocated in accordance with PG&E standards. Therefore, implementation of the Proposed Action would have a less-than-significant effect on public utilities and service systems. The No-Action Alternative would result in slightly reduced impacts on public utilities and service systems compared to the Proposed Action.

5.1.14 RECREATION

Under the No-Action Alternative there would be no effect on recreation in the project area. By comparison, the Proposed Action would construct setback levees on private land, and the new setback levees would not be used for recreational purposes. The setback levees would not negatively affect existing recreational opportunities, would not increase demands on parks or other recreational facilities, and would not result in accelerated physical deterioration of existing recreational facilities. Implementation of the Proposed Action would result in no effect on recreation; therefore, the implementation of the No-Action Alternative would not reduce or avoid any significant impacts associated with this issue.

5.1.15 POPULATION AND HOUSING

The No-Action Alternative would not displace any existing homes or people; however, the potential flooding under this alternative could temporarily or permanently displace those residences immediately adjacent to the eroding Sites 1 and 2 on Cache Creek. By comparison, the Proposed Action would not include new structures, such as housing or businesses, nor would it displace any existing homes or people. Moreover, by decreasing the flood risk, the Proposed Action would better protect existing residences from temporary or permanent displacement. Implementation of the Proposed Action would result in no effect on population, housing, socioeconomics, or environmental justice. Because the Proposed Action would not result in any significant impacts to population, housing, socioeconomics, or environmental justice, the No-Action Alternative would not reduce or avoid any significant impacts related to these issues.

5.1.16 CUMULATIVE IMPACTS

The No-Action Alternative, when considered with other past, present, and reasonably foreseeable projects, would not contribute to a significant cumulative effect on any resources in the project area. The No-Action Alternative would have a reduced incremental effect on air quality and agricultural resources compared to the incremental effect of the Proposed Action. However, the No-Action Alternative would have an increased incremental effect on flood control in the project area. The incremental contribution of the No-Action Alternative to significant cumulative effects is not cumulatively considerable for any resource.

5.2 INSTREAM BANK PROTECTION ALTERNATIVE

The Instream Bank Protection Alternative would consist of placement of gabions, riprap, and sheet piles within the existing Cache Creek channel and along the banks at Sites 1 and 2 to prevent further erosion and to maintain the integrity of the levee system.

5.2.1 RIPRAP

Rock riprap consists of a layer (or layers) of quarry rock that is placed on the bank to be protected. The size of rock to be used in the armoring layer is a function of the flow velocities and the wave action occurring at the bank. To prevent fine bank material from being eroded from underneath the coarser armoring riprap, one or more fabric, sand, and/or gravel filter layers would be installed.

5.2.2 GABIONS

Gabions are rectangular wire-mesh cages divided into cells that are filled with rocks to form walls, bulkheads, jetties, or rock blankets to protect eroding banks. Each cage is placed and securely wired to neighboring gabions before it is filled with stone and closed. Ideally, the rock material used to fill the gabions is placed to obtain a maximum density (i.e., with a minimum of space for air or water); thus, rock sometimes must be placed in

gabions by hand. Once installed, the gabion wall or blanket acts as a somewhat flexible single unit and is not as subject to removal of individual rocks by streamflow energy as riprap.

5.2.3 SHEET PILES

Sheet piles are typically made of steel and have mechanical interlocking sections at both ends of each sheet that allow the sheets to interlock to one another and provide a continuous wall of sheeting. Sheet piles are designed to create a rigid barrier for earth and water, while resisting the lateral pressures of those bending forces.

5.2.4 SITE 1

The Instream Bank Protection Alternative at Site 1 would consist of placement of gabions, riprap, and sheet piles along the bank of Cache Creek for approximately 250 feet to protect the site from further erosion (Exhibit 5-1). These three types of bank protection would be placed at varying levels consistent with the variation in slope and elevation of the erosion site. An access road, up to 14 feet wide) would be cut into the existing bank at a 20% grade to provide for safe ingress and egress of construction equipment into the channel. Embankment material and aggregate base may need to be hauled to the site for construction of this access road. Sheet piles would be placed vertically along the lower portion of the erosion site and would extend upward to the base of the riprap. The base elevation of the sheet piles would range from 9.5 feet to 14.5 feet in elevation, and the top elevation would range from 59 feet to 74 feet in elevation. Backfill material would be placed behind the sheet piles, and a horizontal ledge would be cut at the top of the sheet piles. Wire mesh would be placed horizontally on top of the backfill material, and riprap would be placed on top of the wire mesh. Gabions would be placed on top of a filter fabric layer starting just above the layer of riprap. The base elevation for the gabions would range from 60 feet to 74 feet in elevation. The gabions would follow the existing slope of the bank and would continue to the top of the existing bank that ranges from 84.5 feet elevation to 86.25 feet elevation. In areas where the existing slope of the bank is too steep for placing gabions, the bank would be cut back to create a gentler slope.

5.2.5 SITE 2

At Site 2, the Instream Bank Protection Alternative would consist of placement of gabions, riprap, and sheet piles along the bank of Cache Creek for approximately 150 feet to protect the site from further erosion (Exhibit 5-2). An access road, up to 14 feet wide, would be cut into the existing bank at a 20% grade to provide for safe ingress and egress of construction equipment into the channel. Embankment material and aggregate base may need to be hauled to the site for construction of this access road. Sheet piles would be placed vertically along the lower portion of the erosion site from a base elevation of 16 feet and a top elevation of 62 feet. Backfill material would be placed behind the sheet piles and wire mesh would be placed horizontally on top of the backfill material. The wire mesh would also continue up the slope a short distance to approximately 71 feet in elevation. Riprap would be placed on top of the wire mesh material up to 71 feet in elevation. Three tie downs would be used to secure the wire mesh material. Gabions placed at the top edge of the riprap and would extend to the top of the bank that is approximately 88 feet in elevation. The gabions would be placed on top of a filter fabric layer, and there would be a small area of backfill material behind the gabions.

CONSTRUCTION EQUIPMENT AND STAGING AREAS

There would be one 100-foot by 100-foot staging area at each site for construction parking and storage of construction equipment. These temporary staging areas would be located on the landside of the existing levees on nearby agricultural lands.

The following heavy equipment would likely be used for construction of the Instream Bank Protection Alternative:

- bulldozer for clearing and grubbing,

- scraper for excavation and placement of access ramp,
- grader for construction of access roads and grading for gabion and riprap placement,
- loaders for aggregate base,
- excavator for construction of access roads,
- compactor for compaction of access roads,
- water trucks to reduce dust, and
- crane for placement of riprap and sheet piles.

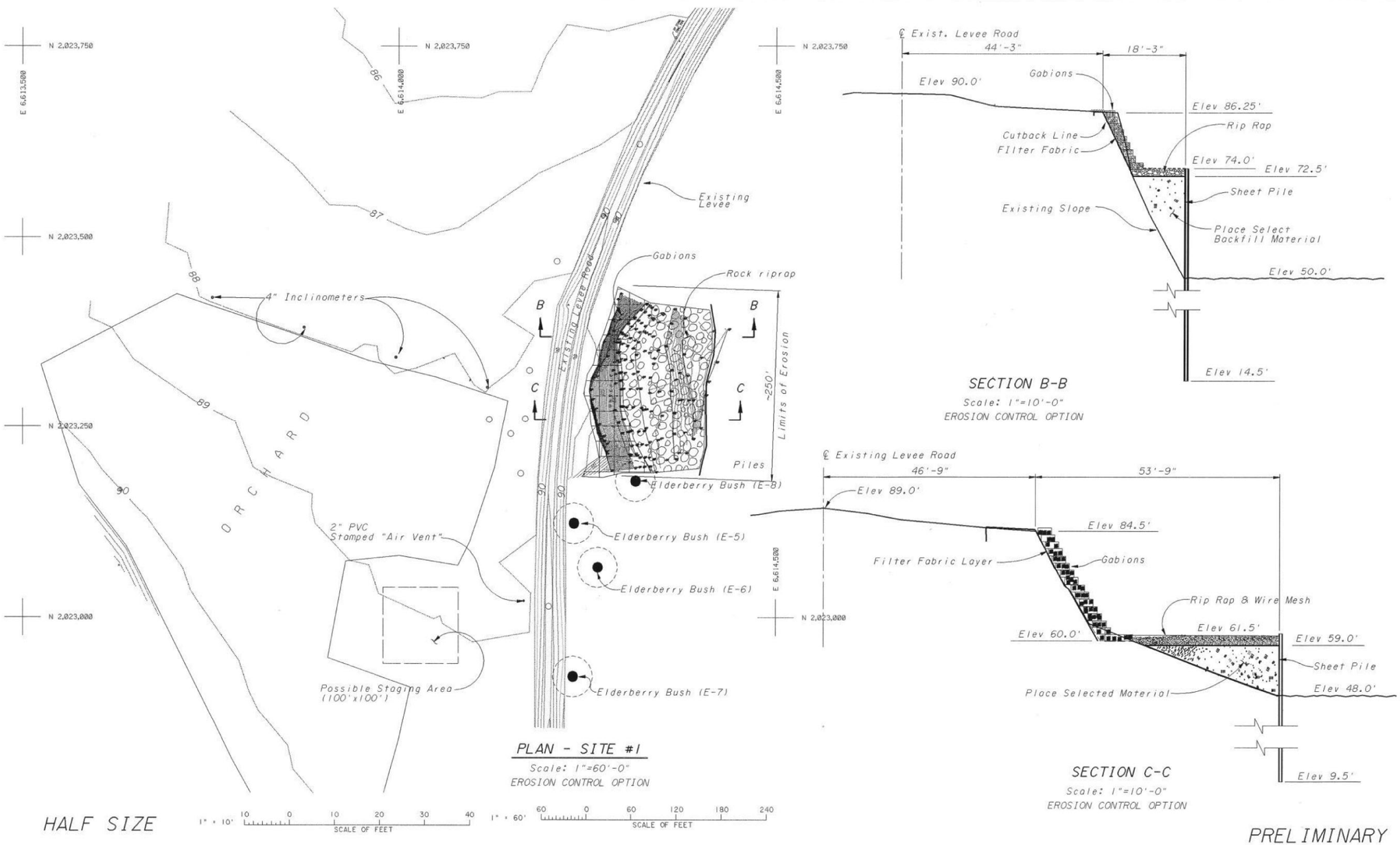
Under the Instream Bank Protection Alternative, approximately 246 round trips would be needed to transport construction materials to the project area. The estimated number of haul trips is broken down by material type in Table 5-1. In addition to haul trips, a crane would likely be used for placing gabions in the steepest areas along the bank. In addition, there would be vehicle trips associated with commute trips of construction workers and miscellaneous vehicle trips for construction equipment.

Table 5-1
Truck Trips for Instream Bank Protection Alternative

Material	Amount Needed	Number of Round Trips for Haul Trucks
Site 1		
Miscellaneous	–	7
Refuse material	–	1
Gabions	533 cubic yards	27
Filter Fabric	2,550 square yards	1
Rock riprap with wire mesh	1,625 tons	81
Sheet piles	11,750 square feet	6
Aggregate base for access ramps	100 tons	5
Dust control	–	1
Grading	–	1
Site 2		
Miscellaneous	–	7
Refuse material	–	1
Gabions	1,245 cubic yards	62
Filter Fabric	1,000 square yards	1
Rock riprap with wire mesh	690 tons	35
Sheet piles	6,392 square feet	3
Aggregate base for access ramps	100 tons	5
Dust control	–	1
Grading	–	1
Total		**246**

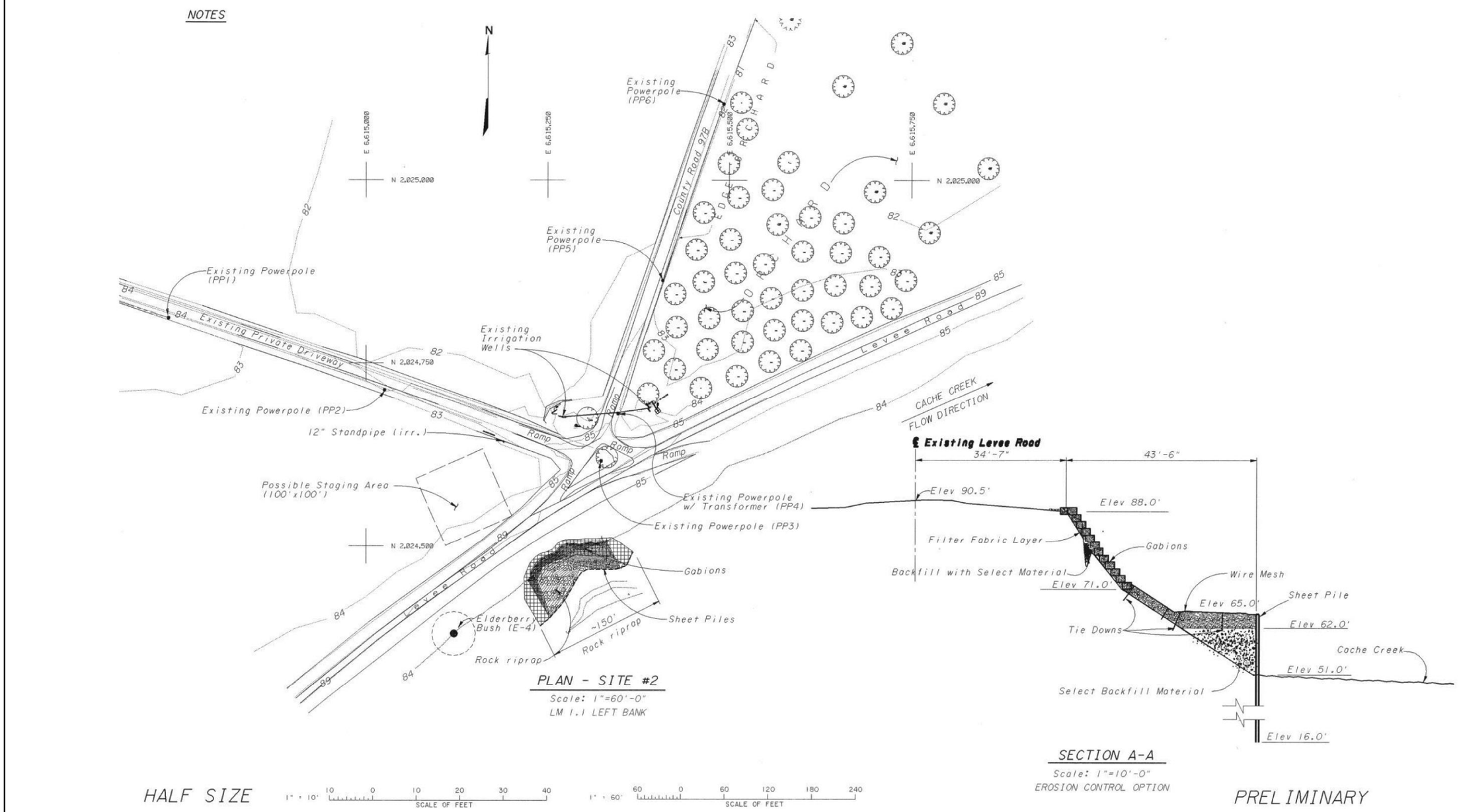
CONSTRUCTION SCHEDULE

Construction of the Instream Bank Protection Alternative at both sites would take approximately 3 months and would primarily occur between mid August and mid November of 2006.



Source: DWR 2006

Instream Bank Protection Alternative – Site 1 **Exhibit 5-1**



Source: DWR 2006

Instream Bank Protection Alternative – Site 2

Exhibit 5-2

5.2.6 LAND USE AND AGRICULTURAL RESOURCES

Construction of the Instream Bank Protection Alternative would occur on the waterside of the existing Cache Creek levee and, thus would not convert any Prime Farmland to non-agricultural use. However, approximately 3 acres of agricultural land would be temporarily used for access and staging areas under this alternative. The agricultural uses of this land would be restored after construction. By comparison, construction of the setback levees would convert 5.06 acres of Prime Farmland to non-agricultural use and would temporarily convert approximately 3 acres of land to non-agricultural use. Because flood control projects are consistent with the historical use of land in the project area, and because such a small amount of land would be converted to non-agricultural use, these impacts would be less than significant. Although the Proposed Action would not result in any significant impacts to land use or agricultural resources, the Instream Bank Protection Alternative would reduce impacts related to this issue.

5.2.7 AESTHETICS

The Instream Bank Protection Alternative would change views of the project area for nearby residences. The gabions, riprap, and sheet piles would be visible from the opposite bank of the creek and from inside the creek channel. Placement of gabions, riprap, and sheet piles along the existing bank of Cache Creek would cause a change in the views of the existing Cache Creek bank that would not be consistent with the visual character of the creek. Access roads would be cut into the existing bank at each site resulting in removal of vegetation and grading of the existing levee. Some vegetation would also be removed from the side and top of the existing bank due to implementation of this alternative. The Instream Bank Protection Alternative would not increase nighttime light and glare in the project area. By comparison, the Proposed Action would change the views of the project area for nearby residences. However, the Proposed Action would be consistent with the visual character of the project area. Both alternatives would have some impacts on aesthetics in the project area and impacts for both alternatives would be less than significant. Although the impacts would be slightly different for these alternatives, their level of significance would be similar.

5.2.8 AIR QUALITY

Implementation of the Instream Bank Protection Alternative would result in the temporary generation of ROG, NO_X, and PM_{10} emissions from site preparation (e.g., excavation for access ramps and placement of gabions), material transport, employee commute trips, and onsite heavy-duty construction. Construction of the Instream Bank Protection Alternative would require approximately 246 haul trips associated with the transport of gabions, riprap, and sheet piles to the project area. These construction-related vehicle trips would temporarily increase ROG, NO_X, and PM_{10} in the project area. By comparison, construction of the Proposed Action would result in approximately 800 construction-related haul trips and would also temporarily increase ROG, NO_X, and PM_{10} in the project area. In addition, there would be construction worker commute trips to the project area and operation of heavy equipment during construction of the setback levees. Mitigation for both alternatives would include such measures as watering disturbed areas and limiting vehicle speeds on unpaved roads to 15 mph to reduce fugitive PM_{10} dust emissions, and requiring all construction equipment be maintained in optimum running condition. Implementation of these and other mitigation measures would reduce the impacts of the Proposed Action and the Instream Bank Protection Alternative to a less-than-significant level. Although air quality impacts from both alternatives would be mitigated to a less-than-significant level, the Proposed Action would result in greater impacts to air quality compared to the Instream Bank Protection Alternative due to the increased number of haul trips associated with this alternative.

5.2.9 NOISE

Implementation of the Instream Bank Protection Alternative would generate a substantial temporary increase in ambient noise levels in the project area and could expose persons to or generate excessive groundborne vibration

or groundborne noise levels. By comparison, construction of the Proposed Action would also create a substantial temporary increase in ambient noise levels in the project area and could expose persons to or generate excessive groundborne vibration or groundborne noise levels. Mitigation for both of these alternatives would include measures such as properly maintaining construction equipment and equipping construction equipment with noise control devices, limiting construction activities to the hours of 6 a.m. to 9 p.m., and not operating large bulldozers within 57 feet of any residences. Implementation of these mitigation measures and others would reduce the impacts of both alternatives to a less-than-significant level. Noise impacts are similar between the Instream Bank Protection Alternative and the Proposed Action, and there would be no significant noise impacts with either alternative.

5.2.10 TRAFFIC

Under the Instream Bank Protection Alternative, the gabions, riprap, and sheet piles would be hauled in from off-site and construction workers would commute to the project area each day. Approximately 246 haul trips and several other miscellaneous vehicle trips to the project area would be needed over the 3-month construction period. Parking would be provided for construction vehicles and construction worker vehicles in the proposed staging areas. By comparison, the Proposed Action would result in approximately 800 haul trips to the project area for the transport of fill material. There would also be additional vehicle trips for construction worker commute trips and miscellaneous vehicle trips for construction equipment. The Instream Bank Protection Alternative would have reduced impacts related to traffic compared to those of the Proposed Action, but neither alternative would result in significant impacts.

5.2.11 HYDROLOGY AND WATER QUALITY

The placement of gabions, riprap, and sheet piles within the existing channel would have significant impacts on the hydrology of Cache Creek. The Instream Bank Protection Alternative would divert the erosion pressure of Cache Creek flows to the opposite, upstream, or downstream banks. Preparation of the existing creek bank for placement of materials within the Cache Creek channel would also have a potentially significant impact on water quality through increased sedimentation and contamination. Construction of access roads into the existing Cache Creek channel would also have a significant impact on water quality due to the high erosion potential. By comparison, the Proposed Action would have a less-than-significant impact on the hydrology of the project area. The Proposed Action has the potential to contribute sediment or other contaminants to Cache Creek that could degrade the water quality of Cache Creek. A SWPPP would be prepared and implemented to reduce the potential water quality impacts to a less-than-significant level under both alternatives. However, the Instream Bank Protection Alternative would have increased impacts related to hydrology and water quality compared to those of the Proposed Action.

5.2.12 BIOLOGICAL RESOURCES

At both erosion sites, the creek bank consists of an earthen cliff that drops vertically to the creek bed. Vegetation on the cliff ranges from absent to sparse. Therefore, little vegetative cover on the cliff face would be removed by construction activities. However, vegetation along the top of the creek banks and within the creek bed would be removed within the construction area and may be disturbed or removed during construction activities. At Site 1, valley oaks and elderberry shrubs are present along the banks above the proposed construction zone; willows and other riparian plant species are present along the creek bed. At Site 2, very little natural riparian vegetation is present above the proposed construction zone, but riparian vegetation is present along the creek bed.

Impacts to and mitigation measures for the following biological resources would be the same as those described under the Proposed Action:

- special-status plants,
- northwestern pond turtle, and
- American badger.

Impacts and mitigation that differ from the Proposed Action are described below.

SPECIAL-STATUS SPECIES

Although, special-status fish are unlikely to be in the project area, placement of gabions, riprap, and sheet piles, and the construction of access roads into the channel would have a potentially significant impact on special-status fish due to the adverse modification of instream and bank habitat. Installation of sheet piles and gabions could reduce bank habitat complexity, alter natural geomorphic processes, and potentially eliminate beneficial shaded riverine aquatic habitat. Construction-related impacts to water quality and aquatic/riparian habitat could also occur. This impact would be potentially significant. Implementation of Mitigation Measure 5-1 would reduce this impact to a less-than-significant level.

Mitigation Measure 5-1: Design and Implement Aquatic Habitat Restoration.

The following measure would reduce potentially significant adverse impacts to special-status fish to a less-than-significant levels:

- The Reclamation Board and USACE shall consult with NMFS, USFWS, and DFG and design and implement an aquatic habitat restoration and enhancement project upstream or downstream of the impacted area with the primary purpose of reducing aquatic and riparian habitat impacts to less-than-significant levels.

- BMPs shall be implemented to protect water quality during construction activities.

The Instream Bank Protection Alternative would not affect the agricultural habitat affected by the Proposed Action, but would eliminate 400 linear feet of Cache Creek stream bank and disturb up to 28 feet (14 at each site) of the surrounding riparian habitat for construction of access roads. One elderberry shrub would likely be relocated under this alternative, and three other elderberry shrubs would have the potential to be indirectly effected by construction on the waterside of the levee. Special-status birds whose habitat may be removed or degraded include bank swallow, Cooper's hawk, sharp-shinned hawk, tricolored blackbird, and loggerhead shrike. Due to the disturbance of special-status species habitat, this impact would be potentially significant. Implementation of Mitigation Measure 5-2 and Mitigation Measure 5-3 would reduce this impact to a less-than-significant level.

Mitigation Measure 5-2: Conduct Pre-Construction Surveys for Nests and Avoid Any Identified Nests during Construction.

The following measures would reduce potentially significant adverse impacts to raptors and special-status birds to a less-than-significant level:

- Nest disturbance would be entirely avoided by limiting construction to the non-breeding season (September 16 to February 28) to the extent feasible. If project construction activities occur between March 1 and September 15, focused surveys for raptors, bank swallow, tricolored blackbird, and loggerhead shrike shall be conducted by a qualified biologist. The surveys shall be conducted no more than 14 days prior to the beginning of construction. Surveys for Swainson's hawk nests shall include all areas of suitable nesting habitat within 0.25-mile of the two sites. To the extent feasible, guidelines provided in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley* (Technical Advisory Committee 2000) shall be followed. Surveys for other raptors and special-status species shall include suitable nesting habitat within 500 feet of each site.

- If no active nests are found, the biologist shall document survey methods and findings in a letter report to DFG, and no further mitigation shall be required.

- If active nests are found, impacts shall be avoided by establishing appropriate buffers and/or nest monitoring by a qualified biologist. The size of the buffer shall be determined by a qualified biologist in consultation with DFG. No construction activity shall commence within a buffer area until a qualified biologist confirms that the nest is no longer active, or consultations with DFG specifically allow certain construction activities to continue.

Mitigation Measure 5-3: Maintain a Buffer Around Elderberry Shrubs.

The following measures would reduce adverse impacts to VELB to a less-than-significant level:

- The Reclamation Board and USACE shall establish and maintain a minimum buffer of 20 feet around each elderberry shrub.

- Buffer areas shall be clearly marked in the field with brightly colored, temporary construction fencing and flagging. No project activity shall occur within the buffer areas.

- Following USFWS guidelines (USFWS 1999), construction crews shall be informed about the status of the beetle and the need to protect its elderberry host plant. If requested by USFWS, a qualified biologist shall monitor construction activities to ensure that the buffers remain protected throughout construction.

- If the establishment of a 20-foot buffer is not feasible, then USFWS shall be consulted. It is anticipated that shrubs that cannot be adequately protected will need to be transplanted to a protected onsite area before construction begins, in accordance with USFWS guidelines (USFWS 1999).

RIPARIAN AND OTHER NATURAL COMMUNITIES

Cache Creek, the patches of Great Valley oak riparian forest, and the riparian vegetation lining the creek bed are all considered sensitive natural communities by DFG. Implementation of the Instream Bank Protection Alternative would result in temporary or permanent removal of vegetation from the bank and bed of Cache Creek and alteration of the bank of Cache Creek. Construction activities would temporarily remove an unknown acreage of the Great Valley oak riparian forest on the upper bank at Site 1 and would permanently remove an unknown acreage of riparian vegetation on the banks at Sites 1 and 2. Due to uncertainty in construction access on the upper bank and recent flooding and erosion activity on the lower bank, the exact acreage of riparian vegetation that would be temporarily or permanently removed due to implementation of the Proposed Action is not known with certainty. However, the acreage of sensitive habitat disturbed under this alternative would be much greater than under the Proposed Action. Because the Instream Bank Protection Alternative would include disturbance of riparian habitat along the bed and bank of Cache Creek, impacts to these sensitive communities would be potentially significant. Implementation of Mitigation Measure 5-4 would reduce this impact to a less-than-significant level.

Mitigation Measure 5-4: Implement Instream Habitat Restoration.

The following measure would reduce potentially significant adverse impacts to sensitive natural communities to a less-than-significant level:

- Prior to initiating ground-disturbing construction activities, the acreage of riparian habitat that would be removed by implementation of the Instream Bank Protection Alternative would be quantified, and a plan to replace or restore/enhance riparian habitat in or adjacent to the project area on a “no net loss” basis would be developed in accordance with USACE and DFG regulations. Habitat restoration, enhancement, and/or replacement would be at a location and by methods agreeable to USACE and DFG.

WETLANDS

Cache Creek qualifies for protection under Section 404 of the Clean Water Act. Construction activities within the ordinary high water mark (OHWM) of Cache Creek could result in fill of waters of the United States and thus require authorization from USACE. Implementation of the Instream Bank Protection Alternative would result in fill of waters of the United States. By comparison, the Proposed Action would not result in any fill of waters of the United States. This fill and alteration of the stream would be considered a potentially significant impact. Implementation of Mitigation Measure 5-5 would reduce this impact to a less-than-significant level.

Mitigation Measure 5-5: Obtain Section 404 Permit.

The following measure would reduce potentially significant adverse impacts to protected wetlands to a less-than-significant level:

- Prior to implementation of the Instream Bank Protection Alternative, a delineation of waters of the United States that could be affected by implementation of the Instream Bank Protection Alternative would be made by a qualified biologist through the formal Section 404 wetland delineation process. The delineation would be submitted to and verified by USACE to determine the amount of acreage affected. Because USACE is a project sponsor, no permit would be issued; however, authorization for such fill and any mitigation measures would need to be secured from USACE through the Section 404 process. Mitigation measures and all conditions specified in the agreement would be implemented by the Reclamation Board and USACE.

WILDLIFE CORRIDORS

The Instream Bank Protection Alternative would not substantially interfere with the movement of native resident wildlife or fish species nor would it substantially interfere with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. The existing conditions of both Sites 1 and 2 present significant natural barriers to wildlife movement between upland and creek habitats in the form of tall and steep cliff banks: a 36.25-foot tall cliff with a 99% slope at one location within Site 1 and a 37-foot tall cliff with an 85% slope at Site 2. This alternative would further restrict access to the creek by creating a 13.5-foot sheet pile wall at Site 1 and a 14-foot sheet pile wall at Site 2; however, wildlife would continue to have access to the creek on either side of the erosion sites. Impacts to lateral movements across the riparian habitat would be similar to those between the uplands and creek. No impacts to instream movements are expected to occur. Implementation of this alternative would not cause significant interference with the movement or migration of resident fish or wildlife in the project area. Neither site supports wildlife nursery sites. Therefore, this impact would be less than significant.

LOCAL POLICIES

Federal projects are not subject to local tree ordinances. Furthermore, Yolo County does not currently have a tree ordinance or other regulations that protect trees within the County. It is likely that tree policies will be developed during the Yolo County General Plan Update process that is currently underway. Valley oaks are present on the upper banks of Cache Creek at both Sites 1 and 2. It is recommended that prior to project construction, brightly colored protective fencing be erected around the driplines of valley oaks located within 30 feet of proposed construction activities at both sites; following this recommendation would protect those trees during implementation of the Instream Bank Protection Alternative. Because federal projects are not subject to nor are there any policies to protect oaks, implementation of the Instream Bank Protection Alternative would have no effect on any local policies covering the project area. The Instream Bank Protection Alternative would have effects on local policies similar to those of the Proposed Action.

HABITAT CONSERVATION PLANS

The project area is within the boundaries of the proposed Yolo County HCP/NCCP, which is currently under development, as well as the CCRMP. The HCP/NCCP will describe the measures that local agencies will perform to conserve biological resources, obtain permits for urban growth and public infrastructure projects, and continue to maintain the rich agricultural heritage and productivity of the county. The purpose of the CCRMP is to manage the resources of Cache Creek in a more coordinated fashion to achieve numerous goals such as flood control, channel improvement and protection, erosion control, groundwater recharge, instream mining restrictions, wildlife enhancement, riparian habitat protection and restoration, and protection of sensitive creek biological resources, such as valley elderberry longhorn beetle, raptors, and other special-status species (Yolo County 2002b).

Implementation of the Instream Bank Protection Alternative would not in any way conflict with the provisions or otherwise affect implementation of the HCP/NCCP. As the HCP/NCCP has not yet been adopted, there is no impact related to the proposed HCP/NCCP. The project area is within the area of jurisdiction of the CCRMP. Construction within the bed of Cache Creek requires notification of the Yolo County Community Development Agency during the project planning phase to ensure consistency with the goals of the CCRMP. Lack of consistency with the CCRMP would be considered a potentially significant impact. Implementation of Mitigation Measure 5-6 would reduce this impact to a less-than-significant level.

Mitigation Measure 5-6: Comply with Goals of the CCRMP.

The following measure would reduce potential inconsistencies with the CCRMP to a less-than-significant level:

- During project planning, the Reclamation Board and USACE would confer with the Yolo County Community Development Agency to ensure that the Proposed Action is consistent with the goals of the CCRMP. If necessary, specific measures to ensure consistency with the CCRMP would be developed and implemented by the Reclamation Board, in coordination with the County.

Overall, implementation of the Instream Bank Protection Alternative would result in increased impacts on biological resources compared to the Proposed Action.

5.2.13 CULTURAL RESOURCES

Under the Instream Bank Protection Alternative, unrecorded artifacts or human interments could be discovered during construction activities. The potential also exists for unrecorded cultural resources to be encountered during construction of the setback levees. Although no prehistoric or historic-era cultural resources have been identified directly within the project area, ground-disturbing activities associated with the Instream Bank Protection Alternative and the Proposed Action have the potential to disturb or otherwise impact undocumented sites, features, and artifacts or human interments. This impact would be potentially significant. Implementation of Mitigation Measures 5-7 would reduce this impact to a less-than-significant level.

Mitigation Measure 5-7: Immediately Halt Construction Activities if Any Cultural Materials Are Discovered.

If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, flaked stone, bottle glass, ceramics, structure/building remains, etc.) is made during project-related construction activities, ground disturbances in the area of the find will be halted immediately and a qualified professional archaeologist will be notified regarding the discovery. The archaeologist shall determine whether the resource is potentially significant as per the CRHR/NRHP and develop appropriate mitigation. Implementation of this mitigation measure would reduce this impact to a less-than-significant level.

Although no evidence of human remains was found in documentary research and a field reconnaissance, future ground-disturbing activities in the APE could adversely affect presently unknown prehistoric burials. California

law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction. In light of the potential to uncover unknown or undocumented Native American burials, this impact is considered potentially significant. Implementation of Mitigation Measure 5-8 would reduce this impact to a less-than-significant level.

Mitigation Measure 5-8: Immediately Halt Construction Activities if Any Human Remains Are Discovered.

The procedures for the treatment of discovered human remains are contained in California Health and Safety Code Section 7050.5 and Section 7052 and California Public Resources Code Section 5097.

In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, all such activities within 75 feet of the find shall be halted immediately and the Reclamation Board or the Reclamation Board's designated representative shall be notified. The Agency shall immediately notify the county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). The Reclamation Board's responsibilities for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. The Reclamation Board or its appointed representative and the professional archaeologist will consult with a Most Likely Descendent (MLD) determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity.

Assuming an agreement can be reached between the MLD and the Reclamation Board and USACE or their representative with the assistance of the archaeologist, these steps will minimize or eliminate adverse impacts to the uncovered human remains.

5.2.14 GEOLOGY AND SOILS

Because of the steepness of the existing Cache Creek bank, preparation of the erosion sites under the Instream Bank Protection Alternative for placement of bank protection materials and construction of access roads could cause significant erosion. The potential for groundshaking and liquefaction would still exist in the project area under the Instream Bank Protection Alternative. A SWPPP would need to be prepared and implemented under the Instream Bank Protection Alternative to reduce these impacts. By comparison, the Proposed Action would have the potential to cause erosion due to notching of the existing levees. Preparation and implementation of a SWPPP would reduce this impact to a less-than-significant level. However, the Instream Bank Protection Alternative would have increased impacts related to geology and soils compared to those of the Proposed Action.

5.2.15 ENERGY AND MINERAL RESOURCES

The project area is within the OCMP and CCRMP planning area. However, the project area is not identified by the OCMP as an area where mining activities are planned to occur in the future. Therefore, the Instream Bank Protection Alternative would not have an impact on energy or mineral resources. By comparison, implementation of the Proposed Action would not result in the loss or availability of a known mineral resource that would be of future value to the region and state residents, nor would it have an impact on energy resources. Because a relatively small amount of acreage (3.11 acres for Site 1 and 1.95 acres for Site 2) would be covered by the footprint of the setback levees, the Proposed Action would not significantly affect locally important mineral resources. The Proposed Action would have a less-than-significant impact with regard to energy and mineral resources. Because the Proposed Action would not result in any significant impacts to energy and mineral resources, the Instream Bank Protection Alternative would not reduce or avoid any significant impacts related to this issue.

5.2.16 HAZARDS AND HAZARDOUS MATERIALS

Under the Instream Bank Protection Alternative, fuels and lubricants would be used for construction and would have the potential to be released into the environment. Preparation and implementation of a SWPPP would reduce this impact to a less-than-significant level. By comparison, fuels and lubricants used for construction have the potential to be released into the environment. Preparation and implementation of a SWPPP would reduce this impact to a less-than-significant level. Therefore, the Instream Bank Protection Alternative and the Proposed Action would have similar impacts on hazards and hazardous materials.

5.2.17 PUBLIC SERVICES

Implementation of the Instream Bank Protection Alternative would not increase the demand for fire protection, sheriff services, public schools, parks, or other public facilities. By comparison, the Proposed Action would not result in the need for an increase or new services in fire protection, sheriff services, school facilities, or other public facilities. The Proposed Action would not include new structures, such as housing or businesses that would require increased public services. Implementation of the Proposed Action would have no effect on public services; therefore, the Instream Bank Protection Alternative would not reduce or avoid any significant impacts associated with the Proposed Action.

5.2.18 PUBLIC UTILITIES AND SERVICE SYSTEMS

The Instream Bank Protection Alternative would not require electricity, natural gas, or communication services, nor would it generate any wastewater or create any demands for water supply. This alternative would not construct any impervious surfaces that would generate stormwater runoff, require new stormwater drainage facilities, or the expansion of existing wastewater facilities. The Instream Bank Protection Alternative would not create any additional solid waste. By comparison, the Proposed Action would not create additional demand for public utilities or service systems, nor would it generate any additional wastewater. The Proposed Action would require the relocation of two existing PG&E power poles that are within the levee setback area at Site 2. These power poles would be relocated in accordance with PG&E standards. Therefore, implementation of the Proposed Action would have a less-than-significant effect on public utilities and service systems. Because the Proposed Action would not result in any significant impacts to public utilities and service systems, the Instream Bank Protection Alternative would not reduce or avoid any significant impacts related to this issue.

5.2.19 RECREATION

Under the Instream Bank Protection Alternative, construction of new recreational facilities would not be required, and there would be no impact on existing recreational facilities. By comparison, the Proposed Action would construct setback levees on private land, and the new setback levees would not be used for recreational purposes. The setback levees would not negatively affect existing recreational opportunities, would not increase demands on parks or other recreational facilities, and would not result in accelerated physical deterioration of existing recreational facilities. Implementation of the Proposed Action would result in no effect on recreation; therefore, the implementation of the Instream Bank Protection Alternative would not reduce or avoid any significant impacts associated with this issue.

5.2.20 POPULATION AND HOUSING

The Instream Bank Protection Alternative would not displace any existing homes or people or have a disproportionate impact on low-income or minority populations. By comparison, the Proposed Action would not include new structures, such as housing or businesses, nor would it displace any homes or people. Both alternatives would reduce the risk of flooding, thereby protecting existing homes and people from displacement during certain flood levels. Implementation of the Proposed Action would result in no effect on population,

housing, socioeconomics, or environmental justice. Because the Proposed Action would not result in any significant impacts to population, housing, socioeconomics, or environmental justice, the Instream Bank Protection Alternative would not reduce or avoid any significant impacts related to these issues.

5.2.21 CUMULATIVE EFFECTS

The Instream Bank Protection Alternative, when considered with the other past, present, and reasonably foreseeable projects, would not contribute to a significant cumulative effect on any resources in the project area. The Instream Bank Protection Alternative would have reduced incremental air quality and agricultural impacts compared to the incremental effects of the Proposed Action. However, the Instream Bank Protection Alternative would have increased incremental effects on biological resources, hydrology, water quality, geology and soils, and fisheries compared to the incremental effects of the Proposed Action. The incremental effect of the Instream Bank Protection Alternative on all other resource areas would be similar to the incremental effect of the Proposed Action. See Chapter 4 "Cumulative and Growth-Inducing Effects" for a more detailed discussion. Overall, the incremental contribution of the Instream Bank Protection Alternative to significant cumulative effects is not cumulatively considerable for any resource.

6 CONSULTATION AND COORDINATION

This section describes initial and ongoing consultation and coordination efforts made by the Reclamation Board and USACE to engage the local community; stakeholders; and other federal, state, and local agencies.

6.1 AGENCIES AND INTERESTED PARTIES

The following agencies and interested parties were consulted during preparation of this environmental document:

- **California Department of Fish and Game.** Input was sought and received from California Department of Fish and Game (DFG) regarding Species of Special Concern to the State of California that may occur in or near the project area, or for which potentially suitable habitat may be found in or near the project area. DFG is a trustee agency with jurisdiction over fish and wildlife of the State. DFG is also responsible for administering the CESA (Fish and Game Code Sections 2050–2097), issuing an incidental take permit as needed and appropriate, and ensuring compliance with the Streambed Alteration Program (Fish and Game Code Section 1602) where subject. The federal Fish and Wildlife Coordination Act (FWCA) of 1934, as amended, requires that federal agencies consult the appropriate State wildlife agency (DFG) as well as the federal counterpart, USFWS. On June 24, 2005, staff from DWR and DFG's Resource Assessment Program surveyed the site for presence of State listed species and other migratory birds. The findings of the visit are noted in the report (DWR 2005b).

- **California Department of Water Resources.** DWR through its Division of Flood Management (DFM) provides funding and staff for the Reclamation Board's partnership with USACE under the SRBPP. DWR's DFM is also responsible for maintenance of the levees at the Site 1 and 2 (also at Site 3) under State Water Code Section 8361 and such work is carried out by the SMY of the Flood Project Maintenance Branch.

  On August 17, 2000, the DFM requested that the SRBPP provide bank protection work at three sites on Cache Creek (Site 1, 2 and 3). In July 2002, following inspection by USACE, these sites were designated as critically in need of repair and added to the SRBPP's inventory of system-wide bank erosion sites. From 2003 and into 2005, DWR and USACE staff developed initial plans for the Cache Creek repairs through the SRBPP Project Development Team. This work was transferred to DWR's Division of Engineers in 2005 for further design, environmental, and construction oversight.

- **National Marine Fisheries Service.** The National Marine Fisheries Service (NMFS) is responsible for managing anadromous and marine species of concern, as well as EFH for anadromous species. Anadromous fish do not have access in or near the project area because of downstream migration barriers in lower Cache Creek. Consequently, NMFS provided input to DWR by letter that the Proposed Action would likely not adversely affect anadromous species or EFH (McInnis 2003; Brown 2006).

- **U.S. Fish and Wildlife Service.** The U.S. Fish and Wildlife Service (USFWS) provided input on federal species of concern in or near the project area, or for which potentially suitable habitat may be found in or near the project area. USFWS is a trustee agency with jurisdiction over federal fish and wildlife species of concern. USFWS will prepare a Coordination Act Report as directed under the FWCA. The FWCA, as amended, proposes to assure that fish and wildlife resources receive equal consideration with other values during the planning of water resources development projects. The Act was passed because the goals of water-related projects (e.g., flood control, irrigation, navigation, hydroelectric power) may conflict with the goal of conserving fish and wildlife resources (DOE 2006). USFWS is also responsible for administering the Federal Endangered Species Act (ESA). The project sponsors have been coordinating with USFWS since December 2005 regarding the Proposed Action.

- **Central Valley Regional Water Quality Control Board.** The State Water Resources Control Board and the Central Valley RWQCB regulate discharges of waste into waters of the state through waste discharge requirements (WDRs), which are authorized under the state Porter-Cologne Water Quality Control Act, and through National Pollutant Discharge Elimination System (NPDES) permits. These permits are authorized under Section 402 of the federal Clean Water Act for waste discharges into waters of the U.S. A Notice of Intent will be submitted to the Central Valley RWQCB for any stormwater discharges associated with general construction activity. A SWPPP will be prepared that details measures to control soil erosion and waste discharges from the construction areas.

- **Native American Interests.** EDAW has initiated consultation with the Native American community in a letter sent to the Native American Heritage Commission (NAHC) requested a search of the NAHC Sacred Lands Files and a list of appropriate Native American tribal contacts and representatives. This effort is currently ongoing and EDAW will send each group or representative a contact letter discussing the nature of the Proposed Action and requesting any information that they might have regarding culturally sensitive properties in or near the project area. This letter will also solicit any concerns the local Native American community may have regarding the project and provide ample opportunity for their comments. In order to ensure that a good faith effort is made to solicit concerns and comments, if responses to the contact letter are not forthcoming within two weeks of mailing the letters, EDAW will follow-up with at least two phone calls to each individual or group.

- **State Historic Preservation Office.** USACE has initiated consultation with the State Historic Preservation Office (SHPO). SHPO is responsible for ensuring that projects and programs carried out or sponsored by federal and state agencies comply with federal and state historic preservation laws and that projects are planned in ways that avoid or minimize adverse effects to heritage resources. Consultation with SHPO will serve as Section 106 compliance for the Proposed Action.

- **Yolo County.** The County provided input on the relocation of County Road 97B. The County has jurisdiction over all county roads in the project area and is responsible for zoning and land uses in the project area.

  There has also been ongoing coordination between the Reclamation Board and the Yolo County Technical Advisory Committee (TAC). The TAC was established to provide scientific and technical oversight for the CCRMP and the Cache Creek Improvement Program (CCIP). The TAC collects and analyzes data, identifies maintenance needs and priorities, and provides critical review of the design and construction of improvement projects. Representatives from the Reclamation Board attended the January 9, 2006, TAC meeting to provide information on the Proposed Action. The TAC provided input on the Proposed Action, which was considered by the Reclamation Board and USACE when preparing this document. It was determined that the Proposed Action would not interfere with implementation of any TAC projects.

- **Pacific Gas & Electric Company**. Pacific Gas & Electric Company (PG&E) was consulted regarding the relocation of two power poles necessary to construct the Proposed Action. PG&E owns and maintains all of the power poles in the project area.

6.2 PUBLIC INVOLVEMENT

The Reclamation Board and USACE have had ongoing coordination with on-site and adjacent landowners who may be affected by the Proposed Action. On October 3, 2003, the SRBPP Development Team met at the project site with representatives of Yolo County, Yolo County Board of supervisors, DWR Maintenance Branch, Yolo County Flood Control and Water Conservation District (YCFCWCD), and local landowners. The purpose of the visit was to obtain public input and preference for flood protection in the area. Comments received during this site visit were used to identify issues and to develop project alternatives.

In addition, this IS/EA is available for a 30-day public review period beginning on March 10, 2006, and ending on April 10, 2006, to allow for additional public input. Written comments may be submitted by the close of business (4:00 p.m.) on April 10, 2006 by email to dcornett@water.ca.gov or addressed to:

Mr. Duane Cornett, Staff Environmental Scientist
Department of Water Resources
Division of Engineering
Construction Branch
P.O. Box 942836
Sacramento, CA 94236

7 COMPLIANCE WITH ENVIRONMENTAL STATUTES

7.1 COMPLIANCE WITH FEDERAL AND STATE LAWS AND EXECUTIVE ORDERS

The Proposed Action has been determined to be in compliance with the following federal and state laws and Executive Orders.

7.1.1 FEDERAL LAWS

NATIONAL ENVIRONMENTAL POLICY ACT OF 1970 (PL 91-190, 83 STAT. 852, 42 USC SECTION 4341 ET SEQ.)

The NEPA process is intended to assist public officials make decisions that are based on an understanding of environmental consequences and take actions that protect, restore, and enhance the environment. Regulations implementing NEPA are set forth by the Council on Environmental Quality. This IS/EA serves as NEPA compliance for the Proposed Action.

CLEAN AIR ACT, AS AMENDED (PL CHAPTER 360, 69 STAT. 322, 42 USC SECTION 7401 ET SEQ.)

Section 118 of the Clean Air Act requires all federal facilities to comply with existing federal, state, and local air pollution control laws and regulations. The Reclamation Board and USACE will work in conjunction with Yolo-Solano Air Quality Management District to ensure that all construction activities meet these requirements.

FEDERAL WATER POLLUTION CONTROL ACT (COMMONLY REFERRED TO AS THE CLEAN WATER ACT) OF 1977 (33 USC 1251 ET SEQ.)

The Clean Water Act provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation's waters. Section 404 of the act prohibits the discharge of fill material into waters of the United States, including wetlands, except as permitted under separate regulations by USACE and the EPA. Because USACE is a co-sponsor of this project and does not issue permits for its own projects, no formal 404 permit is required for the Cache Creek North Levee Setback Project – Critical Erosion Sites 1 and 2. Additionally, this project will not discharge fill into any jurisdictional waters of the United States and; therefore, a 404 permit and a 401 permit are not required for the Proposed Action.

FEDERAL ENDANGERED SPECIES ACT OF 1973, AS AMENDED (PL 93-205, 87 STAT. 884, 16 USC SECTION 1531 ET SEQ.)

The Federal Endangered Species Act protects threatened and endangered species, as listed by USFWS and NMFS, from unauthorized take, and directs federal agencies to ensure that their actions do not jeopardize the continued existence of such species. Section 7 of the act defines federal agency responsibilities for consultation with USFWS and requires preparation of a Biological Assessment to identify any threatened or endangered species that are likely to be affected by the Proposed Action. The Reclamation Board and USACE are informally consulting with USFWS and NMFS regarding potential project effects to federally listed species. A letter stating that the Proposed Action would not likely adversely affect the valley elderberry longhorn beetle is being sent to USFWS with this document.

FISH AND WILDLIFE COORDINATION ACT (FWCA) (16 U.S.C. SEC. 661)

The FWCA, as amended, proposes to assure that fish and wildlife resources receive equal consideration with other values during the planning of water resources development projects. The Act was passed because the goals of water-related projects (e.g., flood control, irrigation, navigation, hydroelectric power) may conflict with the goal of conserving fish and wildlife resources (DOE 2006). USFWS will prepare a Coordination Act Report as directed under FWCA, and the Reclamation Board and USACE will comply with the recommendations of that report.

MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 CFR Section 10.13. This act is an international treaty for the conservation and management of bird species that may migrate through more than one country and is enforced in the United States by USFWS. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50 CFR 20. The act was amended in 1972 to include protection for migratory birds of prey (raptors). The Proposed Action is not expected to have an adverse effect on migratory birds.

NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED (PL 89-665, 80 STAT. 915, 16 USC §470 ET SEQ. AND 36 CFR 18, 60, 61, 63, 68, 79, 800)

The Federal National Historic Preservation Act requires agencies to take into account the effects of their actions on properties listed in or eligible for listing in the National Register of Historic Places. The Advisory Council on Historic Preservation has developed implementing regulations (36 CFR 800) that allow agencies to develop agreements for consideration of these historic properties. EDAW, on behalf of the Reclamation Board and USACE, have complied with 106 by making appropriate efforts to identify cultural resources that might be present within the project area by conducting surveys and archival research. The Reclamation Board and USACE have also complied with the consultation provisions by contacting the Native American Heritage Commission, which will lead to direct contacts with Indian tribes and individuals (this process is currently ongoing). In addition, the Reclamation Board and USACE have reported findings, and are consulting with SHPO for concurrence on the results of their investigations.

7.1.2 STATE LAWS

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The CEQA process is intended to assist public officials make decisions that are based on an understanding of environmental consequences and take actions that protect, restore, and enhance the environment. Regulations implementing CEQA are set forth in the State CEQA Guidelines. This IS/EA serves as CEQA compliance for the Proposed Action.

CALIFORNIA ENDANGERED SPECIES ACT

The California Endangered Species Act expanded upon the original plant protection act and enhanced legal protection for plants and wildlife. The California Endangered Species Act parallels the policies of the Federal Endangered Species Act. The state legislation was written to protect state endangered and threatened plant and animal species whose continued existence in California is in jeopardy. The California Endangered Species Act and Sections 2050 and 2097 of the Fish and Game Code prohibit "take" of plant and animal species designated by the California Fish and Game Commission as either endangered or threatened. EDAW, on behalf of the Reclamation Board and USACE, have conducted surveys for endangered and threatened species, and have

determined that the Proposed Action would likely not affect any State listed species. Therefore, a take permit is not needed for the Proposed Action. See Section 3.7, "Biological Resources" for details.

CALIFORNIA FISH AND GAME CODE

Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code designate certain species as "fully protected." Fully protected species, or parts thereof, may not be taken or possessed at any time without permission by the DFG. Section 3503 of the California Fish and Game Code affords protection to bird nests and birds of prey (orders Falconiformes or Strigiformes). Section 1602 of the Fish and Game Code requires a Streambed Alteration Agreement to be granted prior to any action that may divert or obstruct the natural channel flow, substantially change the bed, channel, or bank of any river, stream, or lake designated by DFG, or use any material from the streambed of a DFG designated waterway. Because project construction would be limited to the existing levees and to the landside of the levees, a 1602 permit would not be necessary for the Proposed Action.

CALIFORNIA NATIVE PLANT PROTECTION ACT

State listing of plant species began in 1977 with the passage of the Native Plant Protection Act. The act directed DFG to carry out the Legislature's intent to "preserve, protect, and enhance endangered plants in this state." The act gave the California Fish and Game Commission the power to designate native plants as endangered or rare, and to require permits for collecting, transporting, or selling such plants. When the California Endangered Species Act was passed, it expanded upon the Native Plant Protection Act and enhanced legal protection for plants. To align with federal regulations, the California Endangered Species Act adopted the categories "threatened" and "endangered" species. It grandfathered all "rare" animals into the act as threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. The Proposed Action is not expected to affect any threatened or endangered plant species.

PORTER-COLOGNE WATER QUALITY CONTROL ACT (CALIFORNIA WATER CODE, SECTION 13020)

Under the authority of the Porter-Cologne Act and federal Clean Water Act, Regional Water Quality Control Boards act as regional agencies for the State Water Resources Control Board and are responsible for regional enforcement of water quality laws and coordination of water quality control activities. A 404 permit with USACE typically triggers the need for a 401 permit. The regional board for the Proposed Action area is the Central Valley RWQCB; however, the Reclamation Board and USACE have determined that a permit from Central Valley RWQCB is not necessary for the Proposed Action because this project would not result in any fill to jurisdictional waters of the United States.

CLEAN WATER ACT AMENDMENTS OF 1987

The 1987 amendments to the Clean Water Act required that EPA establish regulations for the issuance of municipal and industrial stormwater discharge permits as part of the NPDES. The Clean Water Act mandates that certain types of construction activities comply with the USEPA's NPDES requirements pursuant to Section 402. The final EPA regulations were published in November 1990. These regulations apply to any construction activity that disturbs more than 5 acres of land. The Reclamation Board has determined that a NPDES permit would not be necessary for the Proposed Action. However, because of the proximity of Cache Creek to the project, prior to the start of construction, the contractor shall prepare a SWPPP detailing measures to control soil erosion and waste discharges from the construction areas and submit a NOI to the Central Valley RWQCB for stormwater discharges associated with general construction activity.

7.1.3 EXECUTIVE ORDERS

EXECUTIVE ORDER 13112: INVASIVE SPECIES

This Executive Order prevents the introduction of invasive species and directs federal agencies to not authorize, fund, or carry out actions that are likely to cause or promote the introduction or spread of invasive species. The Proposed Action includes measures to prevent the introduction and spread of invasive species.

EXECUTIVE ORDER NO. 12898: ENVIRONMENTAL JUSTICE

This Executive Order requires that federal agencies ensure that their actions do not disproportionately affect minority and disadvantaged populations or communities with adverse human health effects or environmental effects. The Proposed Action would not have an effect on environmental justice. See Section 3.15 "Population, Housing, Socioeconomic Effects, and Environmental Justice" for details.

8 REFERENCES

8.1 PRINTED REFERENCES

Bennyhoff James A. and David A. Fredrickson. 1969. A Proposed Integrative Taxonomic system for Central California Archaeology in *Toward a New* Taxonomic *Framework for Central California Archaeology*. edited by Richard E. Hughes.

Bennyhoff, James A. 1977. *Linguistics in California Prehistory.* Lecture delivered in the Department of Anthropology, San Francisco State University, San Francisco, CA.

California Air Resource Board. 2005. *Area Designation Maps / State and National*. Available at www.arb.ca.gov/desig/adm/adm.htm#state. Accessed December 20, 2005.

California Department of Conservation (DOC). 2005 (December 6). *Farmland Mapping and Monitoring Program. Important Farmland Categories*. Available: <http://www.consrv.ca.gov/DLRP/fmmp/mccu/map_categories.htm> Accessed December 5, 2005.

California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program (FMMP). 2004. *Programs to Conserve California's Farmland & Open Space Resources*. Available <http://www.consrv.ca.gov/DLRP/>. Accessed January 22, 2006.

California Department of Conservation, Division of Land Resource Protection, Williamson Act Program. 2003. *Enrollment Statistics*. Yolo County. Available: <http://www.conservation.ca.gov/DLRP/ lca/pubs/stats/Total%20Enrollment%20(1991-03).xls> Accessed February 1, 2006.

California Department of Finance. 2000. *California County Profile*. Yolo County. Available: http://www.dof.ca.gov/HTML/FS_DATA/profiles/yolo.xls.

California Department of Fish and Game (DFG). 1995. *Staff Report on Burrowing Owl Mitigation*. Sacramento, CA.

California Department of Transportation (Caltrans). 2002. *Transportation Related Earthborne Vibrations.* Sacramento, CA.

———. 2005a. *Traffic and Vehicle Data Systems Unit 2004 All Traffic Volumes on California State Highway System.* Available www.dot.ca.gov/hq/traffops/ saferesr/trafdata/2004all.htm. Accessed December 20, 2005.

———. 2005b. *2004 Annual Average Daily Truck Traffic on the California State Highway System.* Available http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/. Accessed December 20, 2005.

California Division of Mines and Geology (CDMG). 1988. *Mineral Land Classification: Portland Cement Concrete-grade Aggregate in the Sacramento-Fairfield Production –Consumption Region. Special Report 156.*

California League of Conservation Voters. 2005. *Keep Cache Creek Wild and Scenic*. <http://www.ecovote.org/involved/alerts/05/09/ab1328.html> Accessed: January 18, 2005.

California Native Plant Society (CNPS). 2005 (July 9). *Electronic Inventory of Rare and Endangered Vascular Plants of California.* Available: http://northcoast.com/~cnps/cgi-bin/cnps/sensinv.cgi. Accessed November 14, 2005.

California Natural Diversity Database (CNDDB). 2005 (October). *Results of electronic record search*. California Department of Fish and Game, Wildlife and Habitat Data Analysis Branch. Sacramento, CA. Accessed November 14, 2005.

Central Valley Regional Water Quality Control Board (Central Valley RWQCB). 2005 (December 14). *Cache Creek, Bear Creek, Sulphur Creek, and Harley Gulch TMDL*. <http://www.swrcb.ca.gov/rwqcb5/programs/tmdl/Cache-SulphurCreek/index.html> Accessed: February 28, 2006.

Department of Water Resources, Division of Engineering. 2006. *Engineering Geology Report Cache Creek Setback Levees.* Sacramento, CA.

Department of Water Resources (DWR). 2005a (October 14). *Sacramento River Bank Protection Project; Cache Creek Field Reconnaissance.*

_____. 2005b (June 24). *Reconnaissance Surveys for Presence and Nesting Activity of Bank Swallows.* Survey team: Duane Cornett (DWR), Deborah Condon (DWR) and Ron Schlorff (DFG). Sacramento, CA.

EDAW. 2005. Existing Traffic Noise Modeling for Interstate 5 using the Federal Highway Administration (FHWA) Noise Prediction Computer Model.

EIP Associates, Northwest Hydraulic Consultants, & David Keith Todd Consulting Engineers. 1995 (October). *Technical Studies and Recommendations for the Lower Cache Creek Resource Management Plan.* Prepared for Yolo County Community Development Agency.

Federal Highway Administration (FHWA). 1988. Traffic Noise Prediction Computer Model.

———. 2001. *Manual on Uniform Traffic Control Devices.* U.S. Department of Transportation. Publication No. MUTCD-1.

Federal Transit Administration (FTA). 1995. *Transit Noise and Vibration Impact Assessment.* Washington, D.C.

Hickman, J.C. (ed). 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley and Los Angeles, CA.

Jennings, C. W. 1994. *Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions*. California Division of Mines and Geology, Geologic Data Map No. 6, Scale 1:750,000.

Johnson, P. J. 1978. Patwin. In: R. F. Heizer (ed.), *Handbook of North American Indians, Vol. 8: California*:350–360. Smithsonian Institution, Washington, D.C.

Johnson. 1982. *Summary of the Prehistory of the Lower Sacramento Valley and Adjacent Mountains.*

Jones & Stokes. 1987 (December). *Final Environmental Impact Report and Supplemental Environmental Impact Statement IV Sacramento River Bank Protection Project.* Prepared for The Reclamation Board and the U.S. Army Corps of Engineers.

Kroeber, Alfred L. 1925. *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Washington, D.C.

Les, Kathleen. 1986. Department of Parks and Recreation Primary Record, Town of Yolo. Record no. 5697-19-9999 on file at the Northwest Information Center.

McInnis, Rodney R. 2003 (September 16). *NOAA Exemption Letter*.

McKern W. C. 1922. *Functional families of the Patwin.* University of California Publications in American Archaeology and Ethnology 13(7):235–258.

Moratto, Michael J. 1984. *California Archaeology*. Academic Press, New York, NY.

Powers, S. 1877. Tribes of California. U.S. Department of the Interior, Geographical and Geological Survey of the Rocky Mountain Region, *Contributions to North American Ethnology, III*. Washington, D.C.

Rimpo and Associates. 2005. URBEMIS Computer Model Version 8.7.0. Sacramento, CA.

Sacramento Area Council of Governments (SACOG). 2001 (March). SACOG Projections – Yolo County. Available: <http://www.sacog.org/demographics/projections/cities/yolo.pdf >.

Sacramento Metropolitan Air Quality Management District. 2003. Roadway Construction Emissions Computer Model Version 5.1. Sacramento, CA.

———. 2005. *CEQA Planning Information*. Available < http://www.airquality.org>. Accessed December 20, 2005.

Soil Conservation Service. 1972 (June). *Yolo County Soil Survey*. Woodland, CA.

Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley*.

Toppozada, T., D. Branum, M. Petersen, C. Hallstrom, C. Cramer, and M. Reichle. 2000. *Epicenters of and Areas Damaged by M>5 California Earthquakes, 1800-1999*. California Division of Mines and Geology, Map Sheet 49.

U.S. Army Corps of Engineers (USACE). 1958. *Design Memorandum No. 10, Cache Creek, Yolo Bypass to High Ground Levee Construction*. Sacramento, CA.

_____. 2000 (May). *Environmental Site Assessment, Lower Cache Creek, Yolo County, Woodland Area.* U.S. Army Corps of Engineers, Sacramento District. Sacramento, CA.

———. 2002 (October). *Lower Cache Creek, Yolo County, CA, City of Woodland and Vicinity Draft Environmental Impact Statement/Environmental Impact Report for Potential Flood Damage Reduction Project.* U.S. Army Corps of Engineers, Sacramento District. Sacramento, CA.

———. 2003 (March). *Lower Cache Creek, Yolo County, CA, City of Woodland and Vicinity Draft Feasibility Report for Potential Flood Damage Reduction Projection.* U.S. Army Corps of Engineers, Sacramento District. Sacramento, CA.

U.S. Census Bureau. 2002. *American FactFinder*. Available: <http://factfinder.census.gov/servlet/BasicFactsServlet>. Accessed: December 2005.

U.S. Department of Energy (DOE). 2006 (January 6). *Environmental Policy and Guidance. Endangered Species Act and the Wildlife Coordination Act.* <http://www.eh.doe.gov/oepa/laws/esa.html> Accessed: February 1, 2006.

U.S. Environmental Protection Agency (EPA). 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances.* Washington, DC.

———. 1995. *Compilation of Air Pollutant Emissions Factors (AP-42)*. Research Triangle Park, NC.

———. 2005a. *Criteria Air Pollutant Information and Attainment Designations.* Available. <http://www.epa.gov>. Accessed December 20, 2005.

———. 2005b (October 31). Envirofacts Data Warehouse. <http://www.epa.gov/enviro/> Accessed: January 6, 2006.

U.S. Fish and Wildlife Service (USFWS). 1999. *Conservation guidelines for the valley elderberry longhorn beetle.* Sacramento Fish and Wildlife Office, Sacramento, CA.

———. 2005a (February 28). *Species List for Cache Creek North Levee Project, Critical Erosion Sites: Quad 514A.* Sacramento, CA.

———. 2005b (February 28). *Species List for Cache Creek North Levee Project, Critical Erosion Sites: Yolo County.* Sacramento, CA.

U.S. General Land Office. 1857. *Plat map of the area Cacheville (now called Yolo).*

Wahler Associates. 1982. *Geologic Report, Cache Creek Aggregate Resources,* Yolo County, California. For: Aggregate Resources Advisory Committee, County of Yolo, Community Development Agency.

Woodland Joint Unified School District. 2004. *School Accountability Report Card*. Cache Creek Continuation High School. Woodland, CA.

———. 2005. *District Information*. Available: <http://www.wjusd.k12.ca.us/html/the_district.htm>. Accessed: December 2005.

Work, John. 1945. *Fur Brigade to the Bonaventura: John Works California Expedition, 1832–1833, for the Hudson's Bay Company.* A.B. Maloney (ed.). California Historical Society, San Francisco, CA.

Yolo Audubon Society. 2004. *Checklist of the birds of Yolo County*, California. Davis, CA.

Yolo County Community Development Agency. 1995 (October). *Technical Studies and Recommendations for the Lower Cache Creek Resource Management Plan.* Prepared for the Yolo County Community Development Agency by EIP Associates, Sacramento, CA.

Yolo County Local Agency Formation Commission (LAFCO). 2005 (September). *Yolo Fire Protection District. Final MSR/SOI. Municipal Service Review Sphere of Influence.* Woodland, CA.

Yolo County Parks and Natural Resources. 2005 (September). *Esparto Community Park.* Available: http://www.yolocounty.org/prm/espartopark.htm. Accessed: December 2005.

Yolo County. 1983 (July 17). *Yolo County General Plan.*

———. 1996 (July). Final Off-Channel Mining Plan for Lower Cache Creek. Available: http://www.yolocounty.org/prm/PRWAC/articles/OCMP.pdf.

———. 2001a (November). *Yolo County General Plan Open Space and Recreation Element.* Adopted July 1983. Revised November 2001. Woodland, CA.

———. 2001b. *Budget Project Summary*. Cited in USACE 2002.

———. 2002a (March). *Cache Creek Resources Management Plan and Cache Creek Improvement Program Draft Supplemental Program/Project-Level EIR*.

———. 2002b (August). *Revised Final Cache Creek Resources Management Plan for Lower Cache Creek.* Adopted August 20, 1996. Revised August 15, 2002.

———. 2002c. *Yolo County General Plan (updated), Agricultural Element.*

———. 2002d. *Yolo County General Plan. Part 1: The Plan and Referenced Environmental Impact Report.* Adopted July 1983. Revised 2002.

———. 2004. *Yolo County Geographic Information System. Zoning Map*. Available: <http://www.yolocounty.org/gis/gisdisclaim.html>. Last updated May 17, 2004. Accessed January 2006.

———. 2005 (January). *Yolo County General Plan Update Background Report.* Prepared by Jones & Stokes. Sacramento, CA.

Yolo County Parks, Recreation, and Wildlife Advisory Committee and Department of Planning, Resources and Public Works. 2005 (November). Yolo County Parks and Open Space Master Plan. Second Draft. Woodland, CA. Available: http://www.yolocounty.org/prm/Master-Plan/2%20Frontmatter.pdf.

Yolo-Solano Air Quality Management District. 2002. Air Quality Handbook. Davis, CA.

Zhu, Yifang, W. C. Hinds, S. Kim, and S. Shen. 2002. Study of Ultrafine Particles Near a Major Highway with Heavy-duty Diesel Traffic. Atmospheric Environment 36:4323-4335.

8.2 PERSONAL COMMUNICATIONS

Brown, Howard. National Marine Fisheries Service, Sacramento, CA. January 30, 2006—Telephone conversation with Debra Bishop of EDAW regarding notching of existing levees and fish stranding issues.

Caruso, Linda. Assistant planner. Yolo County Planning Department, Woodland, CA. December 16, 2005— telephone conversation with Honey Walters of EDAW regarding the absence of an adopted noise ordinance.

Coast, Suellen. Assistant engineer. Yolo County Department of Planning and Public Works, Woodland, CA. January 11, 2006—email correspondence with Stephanie Bradley of EDAW regarding traffic counts of county roads.

Mckee, Dave. Staff. U.S. Environmental Protection Agency, Washington, D.C. August 31, 2005—email message to Honey Walters of EDAW regarding the revocation of the national 1-hour ozone standard.

Salinas, Julio. Staff toxicologist. Office of Health Hazard Assessment, Sacramento, CA. August 3, 2004— telephone conversation with Kurt Legleiter of EDAW regarding exposure period for determining heath risk.

Sanchez, Arnold. Staff. Department of Water Resources, Sacramento, CA. January 31, 2006—e-mail message to Stephanie Bradley of EDAW regarding detailed construction information.

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APPENDIX A

AIR QUALITY DATA

Additional Fugitive Dust Source Emissions-1											
	4.30	lb/VMT									
*AP-42 emission factor for earthmoving (U.S. Environmental Protection Agency 1995)											
	Total Trips/Day	**Miles/Trip**	**Total Miles/Day**								
	345.00	0.10	34.50			**148.35**	lbs/day				
Assumptions: Movement of 2,850 yd3 associated with trench excavation and compact, placement of 4,662 and 244 yd3 of imported soil and aggregate, 2 trips per load over 3 days											

Road Construction Emissions Model, Version 5.1

Emission Estimates for -> Cache Creek Levee 1					Exhaust	Fugitive Dust	
Project Phases (English Units)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	
Grubbing/Land Clearing	9	49	62	18	3	15	
Grading/Excavation	10	64	77	19	4	15	
Drainage/Utilities/Sub-Grade	0	6	3	15	0	15	
Paving	0	4	0	0	0	0	
Maximum (pounds/day)	10	64	77	19	4	15	
Total (tons/construction project)	0	0	0	0	0	0	<-tons

Notes: Project Start Year -> 2006
Project Length (months) -> 1
Total Project Area (acres) -> 3
Maximum Area Disturbed/Day (acres) -> 3
Total Soil Imported/Exported (yd^3/day)-> 394

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

Emission Estimates for -> Cache Creek Levee 1					Exhaust	Fugitive Dust	
Project Phases (Metric Units)	**ROG (kgs/day)**	**CO (kgs/day)**	**NOx (kgs/day)**	**PM10 (kgs/day)**	**PM10 (kgs/day)**	**PM10 (kgs/day)**	
Grubbing/Land Clearing	4	22	28	8	1	7	
Grading/Excavation	4	29	35	8	2	7	
Drainage/Utilities/Sub-Grade	0	3	1	7	0	7	
Paving	0	2	0	0	0	0	
Maximum (kilograms/day)	4	29	35	8	2	7	
Total (megagrams/construction project)	0	0	0	0	0	0	<-megagrams

Notes: Project Start Year -> 2006
Project Length (months) -> 1
Total Project Area (hectares) -> 1
Maximum Area Disturbed/Day (hectares) -> 1
Total Soil Imported/Exported ($meters^3$/day)-> 301

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

Road Construction Emissions Model — Version 5.1

Data Entry Worksheet

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C28.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

Input Type		
Project Name	Cache Creek Levee 1	
Construction Start Year	2006	Enter a Year between 2000 and 2010 inclusive
Project Type	2	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	1	month
Predominate Soil/Site Type: Enter 1, 2, or 3	1	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
On-Road Emission Factors: Enter 1, 2, or 3	4	1. Emfac7fv1.1 4. Emfac2002 2. Emfac7G 3. Emfac2001
Project Length	0.18	miles
Total Project Area	3	acres
Maximum Area Disturbed/Day	3	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	394	yd^3/day
Soil Exported	0	yd^3/day
Average Truck Capacity	20	yd^3 (assume 20 if unknown)

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C37 through C40.

Construction Periods	User Override of Construction Months	Program Calculated Months	2000	%	2001	%	2002	%
Grubbing/Land Clearing	0	0.1	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0	0.4	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	0	0.4	0.00	0.00	0.00	0.00	0.00	0.00
Paving		0.2	0.00	0.00	0.00	0.00	0.00	0.00
Totals	1	1						

Please note: You have entered a different number of months than the project length shown in cell C13.

Hauling emission default values can be overridden in cells C48 through C50.

Soil Hauling Emissions	User Override of Soil Hauling Defaults	Default Values
User Input		
Miles/round trip	30	30
Round trips/day	22	19.7
Vehicle miles traveled/day (calculated)	660	591

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Hauling Emissions	ROG	NOx	CO	PM10
Emission rate (grams/mile)	0.85	10.00	8.59	0.30
Pounds per day	1.2	14.5	12.5	0.4
Tons per contruction period	0.00	0.05	0.04	0.00

Worker commute default values can be overridden in cells C62 through C67.

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values
Miles/ one-way trip		20
One-way trips/day		2
No. of employees: Grubbing/Land Clearing		3
No. of employees: Grading/Excavation		7
No. of employees: Drainage/Utilities/Sub-Grade		5
No. of employees: Paving		5

0

	ROG	NOx	CO	PM10
Emission rate (grams/mile)	0.36	0.67	7.41	0.04
Emission rate (grams/trip)	1.86	0.82	18.48	0.02
Pounds per day - Grubbing/Land Clearing	0.1	0.2	1.9	0.0
Tons per const. Period - Grub/Land Clear	0.0	0.0	0.0	0.0
Pounds per day - Grading/Excavation	0.2	0.4	4.4	0.0
Tons per const. Period - Grading/Excavation	0.0	0.0	0.0	0.0
Pounds per day - Drainage/Utilities/Sub-Grade	0.2	0.3	3.6	0.0
Tons per const. Period - Drain/Util/Sub-Grade	0.0	0.0	0.0	0.0
Pounds per day - Paving	0.2	0.3	3.6	0.0
Tons per const. Period - Paving	0.0	0.0	0.0	0.0
tons per construction period	0.0	0.0	0.0	0.0

Water truck default values can be overriden in cells C87 through C89 and E87 through E89.

Water Truck Emissions	Program Estimate of	User Override of Water	Default Values

Water Truck Emissions	Number of Water Trucks	Number of Water Trucks	Truck Miles Traveled	Miles Traveled/Day	
Grubbing/Land Clearing - Exhaust	3	1		40	120
Grading/Excavation - Exhaust	3	1		40	120
Drainage/Utilities/Subgrade	3	1		40	120
	ROG	**NOx**	**CO**	**PM10**	
Emission rate (grams/mile)	0.85	10.00	8.59	0.30	
Pounds per day - Grubbing/Land Clearing	0.2	2.6	2.3	0.1	
Tons per const. Period - Grub/Land Clear	0.00	0.01	0.00	0.00	
Pound per day - Grading/Excavation	0.2	2.6	2.3	0.1	
Tons per const. Period - Grading/Excavation	0.00	0.01	0.01	0.00	
Pound per day - Drainage/Utilities/Subgrade	0.1	2.6	2.3	0.1	
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.01	0.01	0.00	

Fugitive dust default values can be overridden in cells C104 and C105.

Fugitive PM10 Dust	User Override of Max Acrerage/Day	Default Maximum Acreage/Day	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing		3	15.0	0.0
Fugitive Dust - Grading/Excavation		3	15.0	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		3	15.0	0.0

Off road equipment default number of vehicles can be overridden in cells B115 through B224.

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day
		Backhoes	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00
1		Compactor	2.08	12.77	11.46	0.62
		Cranes	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00
0	1	Dozer	0.00	0.00	0.00	0.00
0		Excavator	0.00	0.00	0.00	0.00
		Forklifts, Rough Terrain	0.00	0.00	0.00	0.00
1		Grader	1.20	5.29	11.11	0.59
2		Loaders, Rubber Tired	1.84	8.33	16.66	0.87
		Off-Highway Trucks	0.00	0.00	0.00	0.00
		Other Construction Equip.	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00
1	1	Scrapper	3.63	18.83	20.34	1.05
0	0	Signal Boards	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00
		Tractors	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00
		pounds per day	8.7	45.2	59.6	3.1
		tons per period	0.0	0.1	0.1	0.0

Grading/Excavation Override of Default Number of Vehicles	Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day
		Backhoes	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00
1		Compactor	2.08	12.77	11.46	0.62
	0	Cranes	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00
0		Dozer	0.00	0.00	0.00	0.00
0	2	Excavator	0.00	0.00	0.00	0.00
		Forklifts, Rough Terrain	0.00	0.00	0.00	0.00
1	1	Grader	1.20	5.29	11.11	0.59
2	1	Loaders, Rubber Tired	0.92	8.33	16.66	0.87
		Off-Highway Trucks	0.00	0.00	0.00	0.00
	0	Other Construction Equip.	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00
1	1	Scrapper	3.63	18.83	20.34	1.05
0	0	Signal Boards	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00
		Tractors	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00
		max pounds per day	7.8	45.2	59.6	3.1
		tons per period	0.0	0.1	0.2	0.0

Additional Fugitive Dust Source Emissions-2											
	4.30	lb/VMT									
*AP-42 emission factor for earthmoving (U.S. Environmental Protection Agency 1995)											
	Total Trips/Day	**Miles/Trip**	**Total Miles/Day**								
	419.00	0.10	41.90			**180.17**	lbs/day				
Assumptions: Movement of 2,475 yd3 associated with trench excavation and compact, placement of 6,737 and 211 yd3 of imported soil and aggregate, 2 trips per load over 3 days											

Road Construction Emissions Model, Version 5.1

Emission Estimates for -> Cache Creek Levee 2					Exhaust	Fugitive Dust	
Project Phases (English Units)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	
Grubbing/Land Clearing	9	49	62	16	3	13	
Grading/Excavation	9	63	76	16	4	13	
Drainage/Utilities/Sub-Grade	0	6	3	13	0	13	
Paving	0	3	0	0	0	0	
Maximum (pounds/day)	9	63	76	16	4	13	
Total (tons/construction project)	0	0	0	0	0	0	<-tons

Notes: Project Start Year -> 2006
Project Length (months) -> 1
Total Project Area (acres) -> 3
Maximum Area Disturbed/Day (acres) -> 3
Total Soil Imported/Exported (yd^3/day)-> 361

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

Emission Estimates for -> Cache Creek Levee 2					Exhaust	Fugitive Dust	
Project Phases (Metric Units)	**ROG (kgs/day)**	**CO (kgs/day)**	**NOx (kgs/day)**	**PM10 (kgs/day)**	**PM10 (kgs/day)**	**PM10 (kgs/day)**	
Grubbing/Land Clearing	4	22	28	7	1	6	
Grading/Excavation	4	29	35	7	2	6	
Drainage/Utilities/Sub-Grade	0	3	1	6	0	6	
Paving	0	1	0	0	0	0	
Maximum (kilograms/day)	4	29	35	7	2	6	
Total (megagrams/construction project)	0	0	0	0	0	0	<-megagrams

Notes: Project Start Year -> 2006
Project Length (months) -> 1
Total Project Area (hectares) -> 1
Maximum Area Disturbed/Day (hectares) -> 1
Total Soil Imported/Exported ($meters^3$/day)-> 276

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

Road Construction Emissions Model — Version 5.1

Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a
yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C28.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

Input Type		
Project Name	Cache Creek Levee 2	
Construction Start Year	2006	Enter a Year between 2000 and 2010 inclusive
Project Type	2	1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction
Project Construction Time	1	month
Predominate Soil/Site Type: Enter 1, 2, or 3	1	1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock
On-Road Emission Factors: Enter 1, 2, or 3	4	1. Emfac7fv1.1 4. Emfac2002 2. Emfac7G 3. Emfac2001
Project Length	0.15	miles
Total Project Area	3	acres
Maximum Area Disturbed/Day	3	acres
Water Trucks Used?	1	1. Yes 2. No
Soil Imported	361	yd^3/day
Soil Exported	0	yd^3/day
Average Truck Capacity	20	yd^3 (assume 20 if unknown)

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C37 through C40.

Construction Periods	User Override of Construction Months	Program Calculated Months	2000	%	2001	%	2002	%
Grubbing/Land Clearing	0	0.1	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0	0.4	0.00	0.00	0.00	0.00	0.00	0.00
Drainage/Utilities/Sub-Grade	0	0.4	0.00	0.00	0.00	0.00	0.00	0.00
Paving		0.2	0.00	0.00	0.00	0.00	0.00	0.00
Totals	1	1						

Please note: You have entered a different number of months than the project length shown in cell C13.

Hauling emission default values can be overridden in cells C48 through C50.

Soil Hauling Emissions	User Override of Soil Hauling Defaults	Default Values
User Input		
Miles/round trip	30	30
Round trips/day	21	18.05
Vehicle miles traveled/day (calculated)	630	541.5

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Hauling Emissions	ROG	NOx	CO	PM10
Emission rate (grams/mile)	0.85	10.00	8.59	0.30
Pounds per day	1.2	13.9	11.9	0.4
Tons per contruction period	0.00	0.05	0.04	0.00

Worker commute default values can be overridden in cells C62 through C67.

Worker Commute Emissions	User Override of Worker Commute Default Values	Default Values
Miles/ one-way trip		20
One-way trips/day		2
No. of employees: Grubbing/Land Clearing		3
No. of employees: Grading/Excavation		5
No. of employees: Drainage/Utilities/Sub-Grade		5
No. of employees: Paving		4

0

	ROG	NOx	CO	PM10
Emission rate (grams/mile)	0.36	0.67	7.41	0.04
Emission rate (grams/trip)	1.86	0.82	18.48	0.02
Pounds per day - Grubbing/Land Clearing	0.1	0.2	1.9	0.0
Tons per const. Period - Grub/Land Clear	0.0	0.0	0.0	0.0
Pounds per day - Grading/Excavation	0.2	0.3	3.5	0.0
Tons per const. Period - Grading/Excavation	0.0	0.0	0.0	0.0
Pounds per day - Drainage/Utilities/Sub-Grade	0.2	0.3	3.5	0.0
Tons per const. Period - Drain/Util/Sub-Grade	0.0	0.0	0.0	0.0
Pounds per day - Paving	0.1	0.2	2.7	0.0
Tons per const. Period - Paving	0.0	0.0	0.0	0.0
tons per construction period	0.0	0.0	0.0	0.0

Water truck default values can be overriden in cells C87 through C89 and E87 through E89.

Water Truck Emissions

	Number of Water Trucks	Program Estimate of Number of Water Trucks	User Override of Water Truck Miles Traveled	Default Values Miles Traveled/Day	
Grubbing/Land Clearing - Exhaust	3	1		40	120
Grading/Excavation - Exhaust	3	1		40	120
Drainage/Utilities/Subgrade	3	1		40	120
	ROG	**NOx**	**CO**	**PM10**	
Emission rate (grams/mile)	0.85	10.00	8.59	0.30	
Pounds per day - Grubbing/Land Clearing	0.2	2.6	2.3	0.1	
Tons per const. Period - Grub/Land Clear	0.00	0.01	0.00	0.00	
Pound per day - Grading/Excavation	0.2	2.6	2.3	0.1	
Tons per const. Period - Grading/Excavation	0.00	0.01	0.01	0.00	
Pound per day - Drainage/Utilities/Subgrade	0.1	2.6	2.3	0.1	
Tons per const. Period - Drainage/Utilities/Subgrade	0.00	0.01	0.01	0.00	

Fugitive dust default values can be overridden in cells C104 and C105.

Fugitive PM10 Dust

	User Override of Max Acreage/Day	Default Maximum Acreage/Day	pounds/day	tons/per period
Fugitive Dust - Grubbing/Land Clearing		2.5	12.5	0.0
Fugitive Dust - Grading/Excavation		2.5	12.5	0.0
Fugitive Dust - Drainage/Utilities/Subgrade		3	12.5	0.0

Off road equipment default number of vehicles can be overridden in cells B115 through B224.

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day
		Backhoes	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00
1		Compactor	2.08	12.77	11.46	0.62
		Cranes	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00
0	1	Dozer	0.00	0.00	0.00	0.00
0		Excavator	0.00	0.00	0.00	0.00
		Forklifts, Rough Terrain	0.00	0.00	0.00	0.00
1		Grader	1.20	5.29	11.11	0.59
2		Loaders, Rubber Tired	1.84	8.33	16.66	0.87
		Off-Highway Trucks	0.00	0.00	0.00	0.00
		Other Construction Equip.	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00
1	1	Scrapper	3.63	18.83	20.34	1.05
0	0	Signal Boards	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00
		Tractors	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00
		pounds per day	8.7	45.2	59.6	3.1
		tons per period	0.0	0.1	0.1	0.0

Grading/Excavation Override of Default Number of Vehicles	Number of Vehicles *Program-estimate*	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day
		Backhoes	0.00	0.00	0.00	0.00
		Bore/Drill Rigs	0.00	0.00	0.00	0.00
		Concrete/Industrial Saws	0.00	0.00	0.00	0.00
1		Compactor	2.08	12.77	11.46	0.62
	0	Cranes	0.00	0.00	0.00	0.00
		Crawler Tractors	0.00	0.00	0.00	0.00
		Crushing/Proc. Equipment	0.00	0.00	0.00	0.00
0		Dozer	0.00	0.00	0.00	0.00
0	1	Excavator	0.00	0.00	0.00	0.00
		Forklifts, Rough Terrain	0.00	0.00	0.00	0.00
1	1	Grader	1.20	5.29	11.11	0.59
2	1	Loaders, Rubber Tired	0.92	8.33	16.66	0.87
		Off-Highway Trucks	0.00	0.00	0.00	0.00
	0	Other Construction Equip.	0.00	0.00	0.00	0.00
		Pavers	0.00	0.00	0.00	0.00
		Paving Equipment	0.00	0.00	0.00	0.00
		Rollers	0.00	0.00	0.00	0.00
1	1	Scrapper	3.63	18.83	20.34	1.05
0	0	Signal Boards	0.00	0.00	0.00	0.00
		Skid Steer Loaders	0.00	0.00	0.00	0.00
		Surfacing Equipment	0.00	0.00	0.00	0.00
		Tractors	0.00	0.00	0.00	0.00
		Trenchers	0.00	0.00	0.00	0.00
		max pounds per day	7.8	45.2	59.6	3.1
		tons per period	0.0	0.1	0.2	0.0

APPENDIX B

NOISE DATA

Cache Creek		
Projected Construction Noise Level at 50 feet	**Without Noise Control**	**With Feasible Noise Control**
grader	85	75
dozer	80	75
excavator	88	80
TOTAL	90.20	82.13
NOISE DROP OFF CALCULATION		
(feet)	(dBA)	(dBA)
50	90.20	82.13
200	78.16	70.09
250	76.22	68.15
639	68.07	60.00
1618	60.00	51.93
Source: U.S. EPA 1971; FTA 1995		

RUN NAME: I-5 RUN DATE:

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	53.47	8.90	6.63
M-TRUCKS	0.85	0.05	0.10
H-TRUCKS	25.94	0.81	3.24

ADT: 27500 SPEED: 70 ACTIVE HALF WIDTH (FT): 49.5
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE = 80.42
* * DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL * *

70 CNEL	65 CNEL	60 CNEL	55 CNEL
430.3	921.9	1983.6	4271.7

Based on average daily traffic volumes and truck traffic percentage from the California Department of Transportation (Caltrans) Traffic and Vehicle Data Systems Unit for the segment of I-5 nearest to the proposed project.

APPENDIX C

U.S. FISH AND WILDLIFE SPECIES LISTS

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

February 28, 2006

Document Number: 060228041808

Debra Bishop
EDAW, Inc.
2022 J Street
Sacramento, CA 95819

Subject: Species List for Cache Creek North Levee Project, Critical Erosion Sites

Dear: Ms. Bishop

We are sending this official species list in response to your February 28, 2006 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested. You have stated that this list is not for consultation with the Fish & Wildlife Service.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, candidate and special concern species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 29, 2006.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested
Document Number: 060228041808
Database Last Updated: February 14, 2006

Quad Lists

WOODLAND (514A)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander, central pppulation (T)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Species of Concern

Invertebrates

Branchinecta mesovallensis - Midvalley fairy shrimp (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)
Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo Swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

County Lists

Yolo County

Listed Species

Invertebrates

Branchinecta conservatio - Conservancy fairy shrimp (E)
Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - Critical habitat, vernal pool tadpole shrimp (X)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - Critical habitat, delta smelt (X)
Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus mykiss - Critical habitat, Central Valley steelhead (X)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (X)
Oncorhynchus tshawytscha - Critical habitat, winter-run chinook salmon (X)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander, central pppulation (T)
Ambystoma californiense - Critical habitat, CA tiger salamander, central population (X)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)
Strix occidentalis caurina - northern spotted owl (T)

Plants

Cordylanthus palmatus - palmate-bracted bird's-beak (E)
Neostapfia colusana - Colusa grass (T)
Neostapfia colusana - Critical habitat, Colusa grass (X)
Tuctoria mucronata - Critical habitat, Solano grass (=Crampton's tuctoria) (X)
Tuctoria mucronata - Solano grass (=Crampton's tuctoria) (E)

Proposed Species

Fish

Acipenser medirostris - green sturgeon (P)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Birds

Coccyzus americanus occidentalis - Western yellow-billed cuckoo (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)
Anthicus sacramento - Sacramento anthicid beetle (SC)
Branchinecta mesovallensis - Midvalley fairy shrimp (SC)
Dubiraphia brunnescens - brownish dubiraphian riffle beetle (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)
Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Rana boylii - foothill yellow-legged frog (SC)
Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)
Clemmys marmorata pallida - southwestern pond turtle (SC)
Masticophis flagellum ruddocki - San Joaquin coachwhip (=whipsnake) (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Botaurus lentiginosus - American bittern (SC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Contopus cooperi - olive-sided flycatcher (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Limosa fedoa - marbled godwit (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)
Sphyrapicus ruber - red-breasted sapsucker (SC)
Toxostoma redivivum - California thrasher (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Eumops perotis californicus - greater western mastiff-bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis evotis - long-eared myotis bat (SC)
Myotis thysanodes - fringed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

Plants

Astragalus rattanii var jepsonianus - Jepson's milk-vetch (SLC)
Astragalus tener var. tener - alkali milk-vetch (SC)
Atriplex depressa - brittlescale (SC)
Atriplex joaquiniana - San Joaquin spearscale (=saltbush) (SC)
Eriogonum nervulosum - Snow Mountain buckwheat (SC)
Fritillaria pluriflora - adobe lily (SC)
Hesperolinon drymarioides - drymaria dwarf-flax (=western flax) (SC)

Layia septentrionalis - Colusa layia (=Colusa tidytips) (SLC)
Lepidium latipes var. heckardii - Heckard's pepper-grass (SLC)
Madia hallii (=Harmonia hallii) - Hall's madia (=Hall's harmonia) (SC)

Key:

(E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed (in the Federal Register) for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Marine Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(CA) Listed by the State of California but not by the Fish & Wildlife Service.
(D) *Delisted* - Species will be monitored for 5 years.
(SC) *Species of Concern*/(SLC) Species of Local Concern - Other species of concern to the Sacramento Fish & Wildlife Office.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. However you should contact the California Department of Fish and Game Wildlife and Habitat Data Analysis Branch for official information about these species.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

Your list may contain a section called Species of Concern. This is an informal term that refers to those species that the Sacramento Fish and Wildlife Office believes might be in need of concentrated conservation actions. Such conservation actions vary depending on the health of the populations and degree and types of threats. At one extreme, there may only need to be periodic monitoring of populations and threats to the species and its habitat. At the other extreme, a species may need to be listed as a Federal threatened or endangered species. Species of concern receive no legal protection and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address

proposed, candidate and special concern species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 29, 2006.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

February 28, 2006

Document Number: 060228040924

Debra Bishop
EDAW, Inc.
2022 J Street
Sacramento, CA 95819

Subject: Species List for Cache Creek North Levee Project, Critical Erosion Sites

Dear: Ms. Bishop

We are sending this official species list in response to your February 28, 2006 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested. You have stated that this list is not for consultation with the Fish & Wildlife Service.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, candidate and special concern species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 29, 2006.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

TAKE PRIDE IN AMERICA

Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested
Document Number: 060228040924
Database Last Updated: February 14, 2006

Quad Lists

No quad species lists requested.

County Lists

Yolo County

Listed Species

Invertebrates

Branchinecta conservatio - Conservancy fairy shrimp (E)
Branchinecta lynchi - vernal pool fairy shrimp (T)
Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)
Lepidurus packardi - Critical habitat, vernal pool tadpole shrimp (X)
Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - Critical habitat, delta smelt (X)
Hypomesus transpacificus - delta smelt (T)
Oncorhynchus mykiss - Central Valley steelhead (T)
Oncorhynchus mykiss - Critical habitat, Central Valley steelhead (X)
Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)
Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (X)
Oncorhynchus tshawytscha - Critical habitat, winter-run chinook salmon (X)
Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

Amphibians

Ambystoma californiense - California tiger salamander, central pppulation (T)
Ambystoma californiense - Critical habitat, CA tiger salamander, central population (X)
Rana aurora draytonii - California red-legged frog (T)

Reptiles

Thamnophis gigas - giant garter snake (T)

Birds

Haliaeetus leucocephalus - bald eagle (T)
Strix occidentalis caurina - northern spotted owl (T)

Plants

Cordylanthus palmatus - palmate-bracted bird's-beak (E)
Neostapfia colusana - Colusa grass (T)
Neostapfia colusana - Critical habitat, Colusa grass (X)
Tuctoria mucronata - Critical habitat, Solano grass (=Crampton's tuctoria) (X)
Tuctoria mucronata - Solano grass (=Crampton's tuctoria) (E)

Proposed Species

Fish

Acipenser medirostris - green sturgeon (P)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)
Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Birds

Coccyzus americanus occidentalis - Western yellow-billed cuckoo (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)
Anthicus sacramento - Sacramento anthicid beetle (SC)
Branchinecta mesovallensis - Midvalley fairy shrimp (SC)
Dubiraphia brunnescens - brownish dubiraphian riffle beetle (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river lamprey (SC)
Lampetra tridentata - Pacific lamprey (SC)

Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Rana boylii - foothill yellow-legged frog (SC)
Spea hammondii (was Scaphiopus h.) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)
Clemmys marmorata pallida - southwestern pond turtle (SC)
Masticophis flagellum ruddocki - San Joaquin coachwhip (=whipsnake) (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Botaurus lentiginosus - American bittern (SC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Contopus cooperi - olive-sided flycatcher (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Limosa fedoa - marbled godwit (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)
Sphyrapicus ruber - red-breasted sapsucker (SC)
Toxostoma redivivum - California thrasher (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Eumops perotis californicus - greater western mastiff-bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)

Myotis evotis - long-eared myotis bat (SC)
Myotis thysanodes - fringed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)
Perognathus inornatus - San Joaquin pocket mouse (SC)

Plants

Astragalus rattanii var jepsonianus - Jepson's milk-vetch (SLC)
Astragalus tener var. tener - alkali milk-vetch (SC)
Atriplex depressa - brittlescale (SC)
Atriplex joaquiniana - San Joaquin spearscale (=saltbush) (SC)
Eriogonum nervulosum - Snow Mountain buckwheat (SC)
Fritillaria pluriflora - adobe lily (SC)
Hesperolinon drymarioides - drymaria dwarf-flax (=western flax) (SC)
Layia septentrionalis - Colusa layia (=Colusa tidytips) (SLC)
Lepidium latipes var. heckardii - Heckard's pepper-grass (SLC)
Madia hallii (=Harmonia hallii) - Hall's madia (=Hall's harmonia) (SC)

Key:

(E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed (in the Federal Register) for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Marine Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(CA) Listed by the State of California but not by the Fish & Wildlife Service.
(D) *Delisted* - Species will be monitored for 5 years.
(SC) *Species of Concern*/(SLC) Species of Local Concern - Other species of concern to the Sacramento Fish & Wildlife Office.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. However you should contact the California Department of Fish and Game Wildlife and Habitat Data Analysis Branch for official information about these species.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

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